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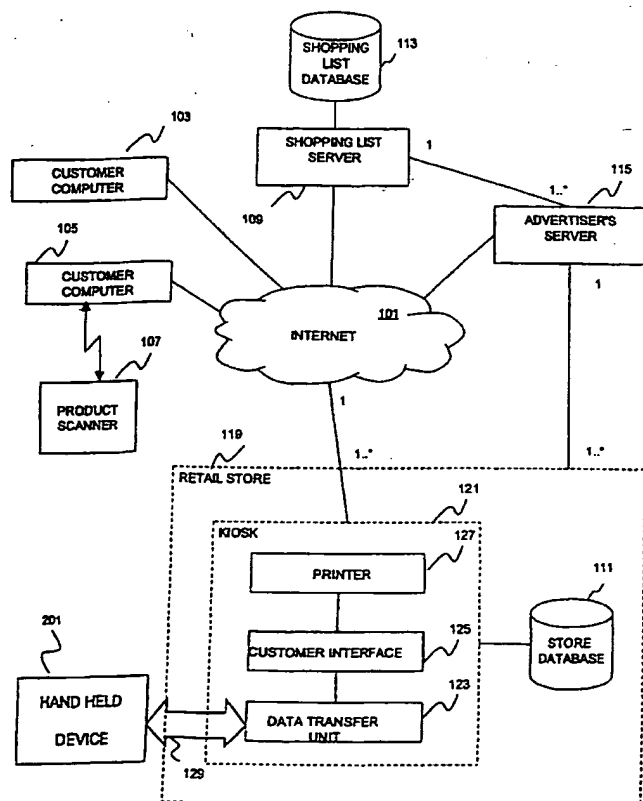
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[Continued on next page]

(54) Title: METHOD AND SYSTEM FOR GENERATING A PERSONALIZED SHOPPING LIST



(57) Abstract: A method, system, and computer readable medium for generating a personalized shopping list. The method includes electronically receiving a customer identifier and an associated product identifier to a computer associated with a retail store and generating, using the computer, a personalized shopping list including a product associated with the product identifier based on the customer identifier. The personalized shopping list is then delivered to a customer associated with the customer identifier in the retail store. The personalized shopping list may be delivered to the customer as a printed list or as an electronic copy of the personalized list and may be sorted according to a sorting criteria selected by the customer. The list may also be accompanied by purchase incentives and advertisements.

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# **Method and System for Generating a Personalized Shopping List**

## **BACKGROUND OF THE INVENTION**

### **Field of the Invention:**

The present invention relates generally to a method and system for generating a shopping list, and more specifically to a method and system for generating a personalized shopping list delivered to a customer at a retail store location.

### **Discussion of the Background**

As every grocery shopper knows, using a shopping list can make the task of shopping for groceries easier and results in fewer forgotten items. However, generating a hand written shopping list is time consuming and such lists can be difficult to maintain over the period of time prior to the shopping event for which the list is intended. Moreover, products on these hand written shopping lists are typically listed in random order which may result in the consumer spending extra time searching areas of the retail store during the shopping event.

In addition, it is well known to provide purchase incentives and advertisements to consumers based on the particular consumer's purchasing history and/or purchase items in the consumer's current transaction. This form of targeted marketing has a disadvantage in that the marketer providing the targeted advertisement or purchase incentive cannot know precisely when the consumer is in need of the product that is the object of the advertisement or purchase incentive, or precisely when the customer will partake in a shopping event. Therefore, the targeted items may be delivered to the consumer long before the consumer shops for the marketed product. Thus, current targeted advertisements have the disadvantage in that the effectiveness of the message of the advertisement may fade in the interim time between the consumer receiving the advertisement and shopping for the product associated with the advertisement. Moreover, targeted purchase incentives may be lost or discarded during this interim time.

## **SUMMARY OF THE INVENTION**

Accordingly, one object of this invention is to provide a method, system and computer program product for generating a personalized shopping list to be delivered to the

consumer at a retail store location.

Another object of the present invention is to provide a method and system for organizing the consumer's personalized shopping list in a way that makes shopping easier.

Yet another object of the present invention is to provide a method and system for delivering targeted purchase incentives and targeted advertisements to the consumer at the retail store location just prior to the consumer's shopping event.

Still another object of the present invention is to provide a method and system for delivering targeted purchase incentives and targeted advertisements to the consumer at the retail store location based on items identified by the consumer to be items desired to be purchased during the shopping event.

These and other objects are achieved by providing a novel method, system, and computer program product for generating and printing a shopping list.

According to one aspect of the invention, a system, computer program product and method for generating a personalized shopping list are provided. The method, on which the system and computer program product are based, includes electronically receiving a customer identifier and a product identifier, generating a shopping list including a product associated with the product identifier, and storing the shopping list as a personalized shopping list associated with the customer identifier. The method may further include delivering the personalized shopping list to a customer at a retail store location based on the customer identifier. Data related to the personalized shopping list and/or product location may be transmitted and received via a wide area network such as the Internet and the personalized shopping list may be sorted according to a predetermined or a selected sorting criteria including product group and/or product location. Moreover, advertisements and purchase incentives may be generated and delivered to the customer along with the personalized shopping list based on the customer identifier and/or the product identifier.

According to another aspect of the invention, a kiosk, computer program product and method for providing a personalized shopping list are provided. The method, on which the kiosk and computer program product are based, includes receiving a customer identifier, obtaining a personalized shopping list associated with the customer identifier, and delivering the personalized shopping list to a customer associated with the customer identifier at a retail store location. The customer identifier is received by either a manual input from a customer

or an electronic input from a hand held device, and a product identifier may be received along with the customer identifier. The personalized shopping list is obtained via a wide area network such as the Internet or a local area network and may be sorted according to a predetermined or preselected sorting criteria. Moreover, advertisements and purchase incentives may be obtained based on the customer identifier and /or product identifier. The personalized shopping list advertisements, and purchase incentives may be delivered by electronically transmitting to a hand held device via one of a hardwired and wireless medium, or by printed hardcopy.

According to yet another aspect of the invention, a retail store computer, computer program product and method for generating advertisements and purchase incentives to be delivered with a personalized shopping list are provided. The method, on which the retail store computer and computer program product are based, includes monitoring an electronic transaction of a customer obtaining a personalized shopping list, generating advertisements and a purchase incentives, and delivering the advertisements and a purchase incentives to the customer at a retail store location along with the personalized shopping list. As a result of the monitoring, a customer identifier and product identifier are determined and purchase incentives and/or advertisements are generated based on the customer identifier and product identifier determined. When the product identifier is used, the purchase incentives and advertisements are generated based on a recorded purchase history associated with the customer identifier. When the product consumer identifier is used, the personalized shopping list is searched for a trigger item; and when the trigger item is found purchase incentives and advertisements associated with the trigger item are delivered along with the personalized shopping list to the customer at the retail store location. The monitoring step may also be used to determine a sorting criteria and the personalized shopping list may be sorted according to the sorting criteria determined.

According to still another aspect of the invention, a hand held device, computer program product and method for obtaining a personalized shopping list are provided. The method, on which the hand held device and computer program product are based, includes electronically transmitting a customer identifier to a computer system associated with a retail store location and electronically receiving at the retail store location a personalized shopping list associated with the customer identifier. A product identifier and sorting criteria may also

be transmitted to the computer system in which case the personalized shopping list includes a product associated with the product identifier and is sorted according to the sorting criteria transmitted. Moreover, advertisements and purchase incentives based on the product identifier and/or customer identifier may be received along with the personalized shopping list, and all transmission and reception of data is accomplished via a hardwired and/or wireless medium.

### BRIEF DESCRIPTION OF THE DRAWINGS

A more complete appreciation of the invention and many of the attendant advantages thereof will be readily obtained as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings, wherein:

Figure 1 is a system for generating a personalized shopping list according to an embodiment of the present invention;

Figure 2 is a block diagram of a hand held device used according to an embodiment of the present invention;

Figure 3 is a schematic illustration of a system for delivering targeted purchase incentives and/or advertisements along with a personalized shopping list, according to an embodiment of the present invention;

Figure 4A is a product identifier table for associating product identifiers with a product according to an embodiment of the present invention;

Figure 4B is a shopping list table for associating customer identifiers (CID's) with current shopping list items according to an embodiment of the present invention;

Figure 4C is a shopping list history table for associating CID's with past shopping lists generated by customers associated with the lists according to an embodiment of the present invention;

Figure 4D is a product sorting table for associating a product identifier with a sorting characteristic according to an embodiment of the present invention;

Figure 4E is a predetermined purchase incentive/advertisement table for associating a predetermined purchase incentive and/or advertisement with a CID according to an embodiment of the present invention;

Figure 4F is a trigger item table for associating trigger items with purchase incentives and/or advertisements according to an embodiment of the present invention;

Figure 5 is a flow chart describing a process for generating a personalized shopping list using a customer computer according to an embodiment of the present invention;

Figure 6 is a flow chart describing a process for generating a personalized shopping list using a hand held device according to an embodiment of the present invention;

Figure 7 is a flow chart describing a process for generating a sorted personalized shopping list according to an embodiment of the present invention;

Figure 8 is a flow chart explaining how purchase incentives and/or advertisements are delivered along with a personalized shopping list according to an embodiment of the present invention;

Figures 9A and 9B are exemplary purchase incentives that may be delivered with a personalized shopping list according to an embodiment of the present invention;

Figures 9C is an exemplary advertisement that may be delivered with a personalized shopping list according to an embodiment of the present invention; and

Figure 10 is a schematic illustration of a computer system programmed to perform one or more of the special purpose functions of the present invention.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings, wherein like reference numerals designate identical or corresponding parts throughout the several views, and more particularly to Figure 1 thereof, a system illustrative of the present invention is shown. The system includes a wide area network (WAN) such as the Internet 101; customer computer 103; customer computer 105 equipped with product scanner 107; a shopping list server 109; a store database 111; a shopping list database 113; an advertiser's server 115; one or more retail stores 119 each having one or more kiosks 121 with a data transfer unit 123, a customer interface 125, and a printer 127; and a hand held device 201 which may be coupled to the kiosk 121 via a communication link 129.

Each customer or consumer is provided with a customer identification (CID) that identifies the particular consumer. The CID can be any identifier that is scanned, read, or otherwise entered into a computer system for generating a personalized shopping list.

Preferably, the CID is represented as a bar code so that it can be quickly scanned, although any other type of machine-readable (or non-machine readable) implementations for storing or displaying identifications may be used, including magnetic strip and computer or memory chips on a card (e.g., smart cards). Examples of possible CIDs are credit card numbers, debit card numbers, social security card numbers, driver's license numbers, checking account numbers, street addresses, names, e-mail addresses, telephone numbers, frequent customer card numbers, shopper card identifications (SCIDs), or shopper loyalty card numbers issued by one of the retail stores 119, although any suitable form of identification may be used.

The customer computers 103 and 105, the shopping list server 109, the advertiser's server 115, and the kiosk 121 may each be implemented as a general purpose computer (e.g., the computer 1001 of Figure 10) and may be appropriately programmed to communicate with one another over a wide area network (WAN) such as the Internet 101. The Internet 101 includes various networks and gateways for linking together various computer networks and computers such as the customer computers 103, 105, servers 109, 115, and kiosk 121.

The customer computers 103 and 105 may be any computer that one or more consumers can access, such as home or office computers. The customer computers 103 and 105 may also be implemented as interactive television sets or other structure suitable for accessing remote computers via the Internet 101. Interactive television systems are described in U.S. Patent Nos. 4,847,700, 5,721,583, and 5,552,735. U.S. Patent Nos. 4,847,700, 5,721,583, and 5,552,735 and all references cited therein are incorporated herein by reference. The customer computers 103 and 105 may be programmed with any suitable Web browser software that permits the customer computers 103 and 105 to retrieve Web pages via the Internet 101 from remote computers or servers such as the shopping list server 109 and/or the advertiser's server 115. The Web browser software may also be used to transmit information provided by a consumer to a remote computer such as the shopping list server 109.

The product scanner 107 coupled to customer computer 105 is any one of a variety of bar code scanning devices for scanning and decoding bar codes such as the UPC and EAN codes on product packaging. A basic product scanner 107 consists of a decoder and a scanner; and a cable may also be required to interface the decoder to a computer or terminal. The basic operation of the product scanner 107 is to scan a bar code symbol and provide an



electrical output that corresponds to the bars and spaces of the bar code. A decoder takes the digitized bar space patterns, decodes them to the correct data, and transmits the data to the computer over wires or wireless, immediately or on a batch process. The product scanner 107 may be implemented as a fixed reader or portable reader. The fixed bar code reader remains attached to the computer and transmits one data item at a time as the data is scanned. Fixed bar code readers include wands charge coupled device (CCD) scanners, and laser scanners. Alternatively, the product scanner 107 may be a portable bar code reader for storing information remotely and subsequently downloading the stored information in the customer computer. The portable bar code reader is a battery operated device that includes a memory for storing bar code information remotely from the customer computer. This data can then be transferred to the customer computer 103 and/or 105 when needed and imported into a database, spreadsheet, or other desktop application. The portable device typically includes an LCD display for displaying user instructions. Exemplary bar code readers are described in U.S. Patents 5,988,507; 6,021,946; and 6,032,862, each of which is incorporated herein by reference.

The shopping list server 109 is a Web server programmed to receive, store, and/or transmit various types of information, including, product identifiers, products, information for identifying consumers, and past and current shopping lists, although the shopping list server 109 may also be implemented using any type of computer. The advertiser's server 115 may be a Web server programmed to send and receive information relating to promotions to and from a remote computer such as the shopping list server 109 and/or kiosk 121. As used herein, the term "promotion" refers to any offer, advertisement, incentive, coupon, commercial, or communication for promoting one or more goods and/or services. Therefore, the term "promotion" includes targeted purchase incentives and advertisements. The advertisers server 115 may communicate with the shopping list server 109 and/or kiosk 121 directly or by way of the Internet 101. The shopping list server 109 and the advertiser's server 115, may be appropriately programmed with server software for delivering Web pages to remote clients or computers such as the customer computers 103 and 105.

Each of the store database 111 and the shopping list database 113 may be implemented using any desired structure including any type of computer connected to any type of storage device including magnetic disks such as one or more hard disk drives, optical

disks, magneto-optical disks, memory chips, or other desired storage devices. The shopping list database 113 is a file that includes records containing information for identifying consumer products, associating CIDs with a current or past shopping list, and delivering targeted purchase incentives and advertisement. Records in the shopping list database 113 contain fields together with a set of operations for searching, sorting, recombining, and other database functions. The shopping database 113 may be implemented as two or more databases, if desired.

The store database 111 is a file that includes records containing information for generating a sorted personalized shopping list at the kiosk 121 and may also include records for delivering targeted purchase incentives and advertisements to the consumer at the kiosk 121. The store database 111 also includes operations for searching, sorting, recombining, and other database functions, and may be implemented as two or more databases, if desired.

The retail store 119 may be any retail location in which retail transactions are made by consumers. The store 119 includes one or more kiosks 121. Kiosk 121 is any small structure and/or electronic unit for transacting with a customer. Each kiosk includes a corresponding data transfer unit 123, a customer interface 125 and a printer 127. The kiosk 121 is coupled to the Internet 101 as well as the store database 111. It is to be understood that the retail store 119 is a retail store location including, for example a building or similar area for making purchase transactions as well as any parking area, walking area, resting area, or any other area associated with the area for making purchase transactions. Moreover, kiosk 121 may be located anywhere in this broad area for making purchases of retail items. According to an embodiment of the present invention, a customer inputs a CID through the customer interface 125 and receives a printed shopping list from printer 127. Alternatively, the customer may input a CID and download the shopping list to hand held device 201 by way of the data transfer unit 123 as will be described below.

The data transfer unit 123 is used to exchange data relating to a personalized shopping list with hand held device 201 via two-way communication link 129 which is implemented as a hard wire or wireless medium. Shopping list items and/or targeted purchase incentives and/or advertisements are uploaded or downloaded by the data transfer unit 123 in response to receiving commands from the shopping list server 109, kiosk 121 and/or hand held device 201, for example. Data transfer unit 123 may be implemented as a data port for transmitting

and receiving data via a hard wired medium, or as a wireless transceiver such as an infrared transmitter and detector or a device for implementing Bluetooth radio link technology. Bluetooth is a technology specification for small form factor, low cost, short range radio links between mobile PCs, mobile phones, and other portable devices. Alternatively, the data transfer unit 123 may be implemented as any combination of suitable devices for providing two-way data communication coupling 129 so as to provide compatibility with a variety of hand held devices. According to one embodiment, data transfer unit 123 sends and receives electrical, electromagnetic or optical signals that carry digital data streams representing various types of information related to a personal shopping list and targeted marketing.

The customer interface 125 of kiosk 121 provides customer with a means for manually inputting information into kiosk 121 and may include a display for prompting the user to input information or select an option. For example, the customer interface 125 may include a keypad that allows a customer to input his or her CID and to select options from a menu displayed on a screen. Printer 127 is any one of a variety of conventionally known printing devices and may be integral to the kiosk 121 or a portable printing device coupled to the kiosk 121.

Moreover, it is to be understood that the kiosk 121 is an active device which includes a memory and a processor for storing and processing data related to generating a personalized shopping list and/or delivering purchase incentives and advertisements to a customer. Alternatively, however, kiosk 121 may be an interface device which transfers information to a computer system that is associated with the retail store, via a local area network (LAN), for example, and includes a memory and a processor for storing and processing data related to generating a personalized shopping list and delivering purchase incentives and/or advertisements to a customer.

It is to be understood that the system in Figure 1 is for exemplary purposes only, as many variations of the specific hardware and software used to implement the present invention will be readily apparent to one having ordinary skill in the art. For example, the functionality of the shopping list server 109 and the kiosk 121 may be combined in a single device. To implement these variations as well as other variations, a single computer (e.g., the computer system 1001 of Figure 10) may be programmed to perform the special purpose functions of two or more of the devices shown in Figure 1. On the other hand, two or more

programmed computers may be substituted for any one of the devices shown in Figure 1. Principles and advantages of distributed processing, such as redundancy and replication, may also be implemented as desired to increase the robustness and performance of the system, for example.

Figure 2 is a block diagram of an exemplary hand held device to be used according to an embodiment of the present invention. Figure 2 is intended to represent any one of a variety of small screen computers such as the hand held computer sold under the trademark PalmPilot by Palm, Inc., or a hand held computer described in any one of U.S. Patent Numbers, 4,545,023, 5,133,076, and 5,900,875, for example. U.S. Patent Numbers, 4,545,023, 5,133,076, and 5,900,875 are incorporated herein by reference. Additionally, the hand held device 201 may be a personal data assistant (PDA), cellular phone, or any other portable hand held device capable of uploading, downloading, storing, and manipulating digital information.

Preferably, hand held device 201 includes a bus 203 or other communication mechanism for communicating information, and a processor 205 coupled with bus 203 for processing the information. Hand held device 201 also includes a memory unit 207, such as a random access memory (RAM) or other dynamic storage device (e.g., dynamic RAM (DRAM), static RAM (SRAM), synchronous DRAM (SDRAM), flash RAM), coupled to bus 203 for storing information and instructions to be executed by processor 205. In addition, memory unit 207 may be used for storing temporary variables or other intermediate information during execution of instructions to be executed by processor 205. Memory unit 207 may further include a read only memory (ROM) or other static storage device (e.g., programmable ROM (PROM), erasable PROM (EPROM), and electrically erasable PROM (EEPROM)) for storing static information and instructions for processor 205. The ROM may be depicted as a separate memory unit. A storage device 211, such as a magnetic disk, may be provided coupled to bus 203 for storing information and instructions.

Hand held device 201 also includes a display unit 213, such as a liquid crystal display (LCD), coupled to bus 203 for displaying information to a user of hand held device 201. The hand held device 201 includes an input device 215, such as an alpha-numeric keypad and/or cursor control, for communicating information and command selections to processor 205.

The hand held device 201 also includes an interface 217 coupled to bus 203. Interface

217 provides a two-way data communication coupling 129 to data transfer unit 123 of the kiosk 121 or a computer system such as the computer system 1001 illustrated in Figure 10. Interface 217 may be a data port for transmitting and receiving data via a wire medium. Alternatively, interface 217 is a wireless transceiver such as an infrared transmitter and detector, a device for implementing Bluetooth short range radio link technology, or any combination of devices for providing two-way data communication coupling 129 so as to provide compatibility with a variety of kiosks. Interface 217 is for sending and receiving electrical, electromagnetic or optical signals that carry digital data streams representing various types of information.

Figure 3 shows a computerized system for delivering targeted purchase incentives and/or advertisements to the customer in the retail store along with the personalized shopping list according to an embodiment of the invention. The system of Figure 3 includes a host computer 301, a global purchase database 303, a retail store computer 307, and a local purchase database 309 used with the shopping list server 109, the store database 111, the hand held device 201, and the one or more kiosks 121, in each retail store 119 shown in Figure 1.

The host computer 301 is any suitable workstation, server, or other device for communicating with the retail store computer 307 and for storing information in and retrieving information from the global purchase database 303. The host computer 301 also determines purchase incentives and advertisements to be sent to customers in the retail store 119 according to one embodiment. The host computer 301 preferably communicates with shopping list server 109 and advertiser's server 115 via Internet 101 or directly to provide targeted purchase incentives and/or advertisements according to the present invention. It should be understood that the functions of the shopping list server 109 and host computer 301 may be performed by a single general purpose computer such as computer system 1001 of Figure 10, for example. Moreover, the host computer 301 communicates with the retail store computer 307 using any suitable protocol and may be implemented using the computer system 1001 of Figure 10, for example.

The global purchase database 303 is a file that includes records containing information for providing targeted purchase incentives and advertisements along with the personalized shopping list according to the present invention. This information includes

information of each purchase made by a customer in the retail store 119 and any other retail store associate with the shopping list server 109 and/or host computer 301. Such information may include, but is not limited to the shelf keeping unit (SKU), brand, size, weight, price, date and time of purchase, and customer identifier (CID) of the customer making the purchase, for example. Portions of this information are obtained from bar codes on purchase items, which are scanned by a scanning terminal at a checkout counter of retail store 119 during a customer transaction. Records in the global purchase database 303 contain fields together with a set of operations for searching, sorting, recombining, and other database functions. The global purchase database 303 may be implemented as two or more databases, if desired. One or more of U.S. Pat. Nos. 5,832,457; 5,649,114; 5,430,644; and 5,592,560 describe techniques for collecting customer purchase history information and for storing such information in databases such as the global purchase database 303 and the local purchase database 309, for example. U.S. Pat. Nos. 5,832,457; 5,649,144; 5,430,644; and 5,592,560 are incorporated herein by reference. Additionally, techniques for collecting customer purchase information and for storing such information in databases, such as the global purchase database 303 and the store database 313, are described in other patents owned by Catalina Marketing and/or Catalina Marketing International. Each patent owned by Catalina Marketing and/or Catalina Marketing International is incorporated herein by reference.

The retail store computer 307 may be implemented using the computer system 1001 of Figure 10, for example, or any other suitable PC, work station, server, or device for communicating with the host computer 301, for storing and retrieving information in the local purchase database 309 and/or the store database 111, and for monitoring data transmitted between the shopping list server 109 and kiosk 121. According to one embodiment, the retail store computer 307 determines and delivers purchase incentives and/or advertisements along with the personalized shopping list to kiosk 121.

The local purchase database 309 is a file that includes records containing information for providing purchase incentives and advertisements according to the present invention. The records in the local purchase database 309 contain fields for associating bar codes with products in the retail store 305 (e.g., by using UPC, JAN, and/or EAN codes) and associating customer identifiers with purchase incentives. The local purchase database 309 also includes operations for searching, sorting, recombining, and other database functions. The local

purchase database 309 may be implemented as two or more databases, if desired.

Periodically, (e.g., daily) sales transaction information stored in the local purchase database 309 is retrieved by the retail store computer 307 and sent to the host computer 301, which uses the information to update the purchase history information stored in the global purchase database 303.

As discussed, the retail store 119 includes one or more kiosks 121. Each kiosk 121 preferably includes a corresponding printer 127, a customer interface 125, and a data transfer unit 123. The data transfer unit 123 is coupled to the retail store computer 307 and provides a two-way data communication coupling 129 with hand held device 201. Information relating to a personalized shopping list is exchanged between shopping list server 109 and the kiosk 121 by way of the retail store computer 307 so that the retail store computer can monitor such information. If there are multiple kiosks within the retail store 119, then each kiosk 121 is preferably arranged on a loop with the host computer 301 and/or shopping list server 109. The retail store computer 307 is located in front of the host computer 301 and/or shopping list server on the loop so that information transmitted from the kiosks to the shopping list server 109 is monitored by the retail store computer 307. In an embodiment wherein targeted purchase incentives and/or advertisements are delivered along with the personalized shopping list, store database 111 may be connected to the kiosk 121 by way of the retail store computer 307. Alternatively, the store database 111 may be directly connected to kiosk 121 as shown in Figure 1.

As with the system of Figure 1, it is to be understood that the system in Figure 3 is for exemplary purposes only, as many variations of the specific hardware and software used to implement the present invention will be readily apparent to one having ordinary skill in the art. For example, the functionality of the retail store computer 107 and the kiosk 121 may be combined in a single device. To implement these variations as well as other variations, a single computer (e.g., the computer system 1001 of Figure 10) may be programmed to perform the special purpose functions of two or more of the devices shown in Figure 3. On the other hand, two or more programmed computers may be substituted for any one of the devices shown in Figure 3. Principles and advantages of distributed processing, such as redundancy and replication, may also be implemented as desired to increase the robustness and performance of the system, for example.

The present invention stores information relating to consumer identifications, product identifiers, consumer products, advertisements, and purchase incentives, for example. This information is stored in one or more memories such as a hard disk, optical disk, magneto-optical disk, and/or RAM, for example. One or more databases, such as the shopping list database 113 and store database 111 may store the information used to implement the present invention. The databases are organized using data structures (e.g., records, tables, arrays, fields, graphs, trees, and/or lists) contained in one or more memories, such as the memories listed above or any of the storage devices listed below in the discussion of Figure 10, for example.

Figures 4A-4F, depict data structures used for implementing a system for generating a personalized shopping list and delivering target purchase incentives and/or advertisements along with the shopping list according to an embodiment of the present invention. The data structures are depicted in a relational format, using tables, whereby information stored in one column (i.e., field) of a table is mapped or linked to information stored in the same row (i.e., record) across the other column(s) of the table. These data structures are used by the shopping list server 109, the advertiser's server 115, the hand held device 201, the host computer 301, the retail store computer 307, and/or retail store kiosk 121 to generate a personalized shopping list according to the present invention and to deliver purchase incentives and advertisements with the shopping list.

Figure 4A is a product identifier table 401 that includes a field 403 for storing product identifiers and a field 405 for storing product names associated with the product identifier in the field 403. Each retail product has a unique product identifier such as a product package bar code. To illustrate the use of product identifier table 401, Figure 4A includes three exemplary entries. The first entry of Figure 4A shows that field 403 may contain the number "12345" as a product identifier, and in the same record, field 405 may contain the entry "XYZ frozen carrots" as a corresponding retail product. The retail store table 401 also includes the product identifiers "8765" and "x23y86" and the corresponding entries (i.e. the entry in the same record) "boneless pork chops" and "brand A cheddar cheese" respectively in field 405. Table 401 may also include a product description or any other information associated with the product identifier in field 403. Thus, the retail store table 401 associates each product identifier with a particular product and any other information specific to the product. The



product identifier table 401 is preferably stored in the shopping list database 113 but may be stored in the store database 111 and the local purchase database.

Figure 4B is a shopping list table 407 that includes a field 409 for storing CIDs and a field 411 for storing current shopping list items associated with the CID. Shopping list table 407 stores CIDs of many different customers and shopping lists associated with each CID. The shopping list items in table 407 may be in the form of products or product identifiers. Thus, as seen in the exemplary entries of Figure 4B, the first entry in table 407 associates brand A cheddar cheese and XYZ frozen carrots as well as other products that make up the consumer's shopping list with the customer identifier 071870. The second entry of table 407 associates a shopping list including ABC cola, boneless pork chops and product identifier 12345 which, as seen in Figure 4A, corresponds to "XYZ frozen carrots" with a different customer having CID 090269. Shopping list items table 407 may be stored in the shopping list database 113 the local purchase database 309 and/or the store database 111.

Once the customer generates and prints a shopping list, the list may then be archived in a shopping list history table 408 which includes a field 410 for CIDs, and a field 412 for past shopping lists associated with the CIDs as seen in Figure 4C. The past shopping list may be stored as a date when the list was printed or generated. Thus, the shopping list history table 408 associates a CID with one or more shopping lists of a consumer associated with the CID. When the customer associated with the past shopping list requests the list, the shopping list server 109 associates the date with a group of products in the list. The shopping list history table 468 is preferably stored in the shopping list database 113.

Figure 4D is a product sorting table 413 including a field 415 for storing product identifiers, a field 417 for storing product categories, and an field 419 for storing product locations within retail store 119. As discussed above, the product identifier in field 415 may be bar codes or other information that identifies a product. When the shopping list server 109 sends product identifiers of shopping list items to the kiosk 121, the kiosk 121 delivers a sorted personalized shopping list to the customer for convenience. For example, Figure 4D shows product identifier 12345, which as seen in Figure 4A corresponds to frozen carrots, as being a frozen food located in aisle 12. Similarly, product identifiers 8765 and FF2081 correspond to a meat at the meat counter and a frozen food in aisle 13 respectively. Thus, if a consumer's shopping list includes items 12345, 8765, and FF2081 and the consumer request

that the list be sorted by product category, the shopping list delivered to the consumer would group the products corresponding to 12345 and FF2081 together because these products are in the same category of frozen foods. In a preferred embodiment, the sorting criteria stored in fields 417 and 419 are product categories and product locations respectively, however, it is to be understood that the product items may be grouped in any way that provides convenience for the customer. For example, the products may be listed in terms of price or prioritized based on criteria predetermined by the customer. The product sorting table is preferably stored in the store database 111, or similar storage space associated with retail store 119.

Figure 4E is a predetermined purchase incentive/advertisement table 421 that includes a field 423 for storing CIDs and a field 425 for storing predetermined purchase incentives and/or advertisements associated with the CID. The predetermined purchase incentive advertisement table 421 stores CIDs of many different customers and purchase incentives and/or advertisements associated with each CID. Thus, as seen in the exemplary entries of Figure 4E, the first entry in table 421 associates predetermined purchase incentives with the CID 071870 referred to in Figure 4A, while the second entry of table 421 associates a predetermined advertisement with a different customer having CID MMM765. The predetermined purchase incentives and advertisements in field 425 may be determined based on purchase history of the customer obtained by analysis of, for example, purchase data such as the location of the purchase, a description of the items purchased, the price of each item purchased, date and time of the transaction, and any other desired information of customers' transactions.

Figure 4F is a trigger item table 427 including a field 429 for storing trigger items and a field 431 for storing purchase incentives and or advertisements. The trigger items in field 429 may be bar codes or other product identifiers. When product identifiers are sent from the shopping list server 109 to the kiosk 121 as part of a consumer shopping list, the product identifiers of the shopping list are monitored by the retail store computer 307. If a monitored product identifier matches a product identifier of a trigger item in field 429, then the corresponding purchase incentive(s) and/or advertisements in the field 431 are delivered to the consumer at the kiosk 121 along with a personalized shopping list. Thus, the trigger item table 427 associates trigger items with purchase incentives and advertisements to be delivered to a customer whose shopping list includes one or more of the trigger items in the field 429.

In a preferred embodiment, the purchase incentives and advertisements stored in field 431 are for products that are complements of, in competition with, or in some way related to the purchase trigger items stored in field 429. The first entry of Figure 4F illustrates an example of a purchase incentive for a product in competition with a trigger product. In this example, "brand A cola" in field 429 is a shopping list item that provides a trigger for a purchase incentive of "50 cents off brand B cola" in field 431, brand B cola being in competition with brand A cola. Similarly, trigger item "brand T tea" in field 429 triggers an advertisement for "brand X sweetener" in field 431, sweetener being ordinarily used with tea and therefore a complement item of tea. Thus, if a customer's shopping list includes both brand A cola and brand T tea, product identifiers to these items will be delivered to the kiosk 121 and a purchase incentive for 50 cents off brand B cola and an advertisement for brand X sweetener will be delivered to the kiosk 121 along with the shopping list. How the purchase incentives and advertisements in fields 425 and 431 are provided in response to CIDs and a trigger items in field 423 and 429 respectively will be further described below.

The data structures embodied by the present invention include the data structures shown in Figures 4A through 4F, as described above. Alternatively, any other desired manner of implementing the data structures embodied by the present invention may be equivalently implemented so that the desired functionality and corresponding practical application are achieved.

According to one embodiment of the present invention, a consumer generates a personalized shopping list using a desktop computer, and receives a printed copy of the shopping list at the kiosk 121 in retail store 119, for example. Figure 5 is a flowchart explaining the process for generating a printed personalized shopping list according to one embodiment of the present invention. In step 501, the consumer inputs a CID and shopping list items into customer computer 103 or 105, typically located within the consumer's home. The CID may be input manually, by scanning a card or other medium having the customer's CID printed thereon in bar code format, or by swiping a magnetic identification card in a magnetic card reader connected to the customer computer. Similarly, the product identifiers of shopping list items may be manually input to the customer computer or input by use of product scanner 107. Preferably a consumer generating a personalized shopping list uses product scanner 107 connected to customer computer 105 to first scan the bar code of the

consumer's CID card and then to scan the package bar codes such as UPC bar codes of shopping list products.

In step 503, the shopping list server 109 is accessed from the desktop computer 105 for example. This is done by using the web browser on the customer computer 105 to locate the URL of the shopping list server 109. Once the shopping list server 109 has been accessed, in step 505 the CID and product identifiers associated with the shopping list items are electronically transmitted to the shopping list server 109 via the Internet 101. The electronic transmission may be made as products are input into the desktop computer 103, or in bulk after several products have been stored in the desktop computer 103. Moreover, the consumer may access the shopping list server 109 first and then input the consumer's CID and shopping list items directly to the shopping list server 109 without saving these items to customer computer 105

As the CID and product identifiers are transmitted to the shopping list server 109, the shopping list server 109 creates a personalized shopping list associated with the CID and stores the list in the shopping list database 113. The shopping list server 109 may store the shopping list as a list of product identifiers such as UPC bar codes associated with a CID or, preferably, as a list of products understandable to the consumer. In the latter situation, the shopping list database 113 contains product identifier table 401 for associating the product identifier scanned by the consumer with corresponding products. Thus, as product identifiers and CIDs are transmitted to the shopping list server 109 the shopping list table 407, of Figure 4B is populated and stored in shopping list database 113 or any other suitable storage space.

The customer may modify the shopping list before using the list at a retail store. As shown by the decision block 507, if the customer wishes to add to the shopping list, steps 501 through 505 are repeated as more products are scanned, electronically transmitted and stored.

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consumer to retrieve one of his or her past shopping lists which can then be modified to create a current shopping list.

Once the customer has input all products for a particular shopping event into the shopping list server 109, the customer inputs his or her CID at the kiosk 121 located in a particular retail store 119 as seen in step 509. The CID may be entered by swiping a magnetic card, by scanning an ID card, or by manually inputting the CID on a numeric key pad on customer interface 125 of the kiosk 121 for example. In this step, the customer may also enter into the kiosk 121, a desired sorting criteria for the shopping list desired as will be described below. Alternatively, a sorting criteria may be associated with the CID and transmitted with the CID and product identifiers in step 505 described above. The kiosk 121 then accesses the shopping list server 109 via the Internet 101 in a manner similar to that described above, and the entered CID is transmitted over the Internet 101 to the shopping list server 109. The shopping list server 109 then references the shopping list table 307 stored in the shopping list database 113 and retrieves the product identifiers associated with the CID entered in step 509. The shopping list associated with the CID is then electronically transmitted to the kiosk 121 via Internet 101 as shown in step 513. The shopping list may be transmitted as a list of products in which case the shopping list server 109 converts any bar codes on the list to products using product identifier table 401 stored in the shopping list database 113. Alternatively, this conversion is made at kiosk 121 or a computer associated with the kiosk after electronic transmission of the list.

Once the product identifiers have been transmitted to kiosk 121, the kiosk determines whether the customer associated with the CID entered in step 509 also entered a sorting criteria as indicated by decision 515. If a sorting criteria was entered, then the kiosk 121 prints the shopping list according to the criteria entered as shown in step 517 and detailed in Figure 7. If no sorting criteria was entered, then the list is printed in a random or predetermined order as seen in step 519. In this way, the customer obtains a printed personalized shopping list at the kiosk 121 in the retail store just prior to the customer's shopping event.

According to another embodiment, the customer receives a printed copy of a past shopping list. According to this embodiment, the customer inputs his or her CID, as well as a sorting criteria if desired, into a retail store kiosk 121. The kiosk 121 then accesses the

shopping list history table 408 stored in the shopping list database, store database, or other suitable database, and provides the customer with a past shopping list associated with the entered CID. In this way, the customer who has not had time to generate a current shopping list may obtain a past shopping list to help the customer recall items that may need to be purchased in the current shopping event.

According to yet another embodiment of the present invention, the shopping list may be generated and retrieved by use of hand held device 201 as shown by the flow chart in Figure 6. According to this embodiment, the consumer inputs his or her customer identifier and product identifiers into the hand held device 201 as in step 601. This may be done manually or by scanning product identifiers if the hand held device 201 is equipped with a bar code scanner. In addition, the user of the hand held device may input a sorting criteria into the hand held device at the time of inputting the product identifiers and CID. Upon entry, CID and product identifiers are stored in memory unit 207 and/or storage device 211 via the interface 217 and bus 203 of the hand held device 201. Thus, the hand held device 201 stores the shopping list table 407 which is populated by the user entries to the hand held device 201. The shopping list table 407 stored within the memory of the hand held device 201 preferably includes a list of products (i.e., product descriptions) so that the consumer can easily identify the products when reviewing the shopping list on the hand held device 201. Therefore, hand held device 201 may access product identifier table 401 located on an external storage space, such as shopping list database 113, in order to convert product identifiers such as bar codes input into the hand held device 201 by scanning, into products. Alternatively, product identifier table 401 may be stored in the memory unit 207 or storage device 211. Still alternatively, the shopping list items may remain as bar codes stored in the hand held device 201 until the hand held device is interfaced with the kiosk 121 as will be described.

After the product identifiers and sorting criteria are stored in the hand held device 201, the customer may view the shopping list on the display 213 of hand held device 201. The product identifiers may be viewed on display 213 individually or in tabular format as seen in Figure 4B, for example, allowing a user of the hand held device 201 to view several product identifiers at one time. Input device 215 of hand held device 201 allows a user of the hand held device 201 to communicate command selections to the processor 205 via the bus

203, for selecting, deleting, grouping and otherwise modifying the shopping list items stored in memory of hand held device 201. For example, a customer using hand held device 201 may view all shopping list items, group the items to be deleted, and retain the remaining items. Additionally, if the customer wishes to add to the shopping list, the customer may return to step 601 and input further product identifiers for the items added to the list as shown by the decision block 603.

Once the customer has input all of the product identifiers for a particular shopping event into the hand held device 201, the customer interfaces the handheld device 201 with the kiosk 121 at the retail store 119 as shown in step 605. The interfacing step may be a physical connection of the hand held device with the kiosk 121, or a wireless link between the hand held device 201 and the kiosk 121. With the hand held device 201 interfaced with the kiosk 121, the hand held device 201 electronically transmits the CID and shopping list items from the hand held device to the kiosk 121 as shown in step 607. Also during this step, the kiosk 121 receives sorting criteria if requested by the customer. In a preferred embodiment, the sorting criteria is input into the hand held device and transmitted to the kiosk 121 with the CID and shopping list items as shown in Figure 6. Alternatively, when a physical connection is made with the kiosk 121, the user can manually enter the sorting criteria into the kiosk 121 by selecting from a menu, for example. Similarly, the customer's CID and any other information may be manually input at the kiosk 121 at the time of interfacing the hand held device 201 with the kiosk 121.

After the kiosk 121 receives the CID and product identifiers, the shopping list server is accessed via Internet 101 in the step 609 and the products associated with the product identifiers are electronically transmitted to the kiosk 121 as in step 611. During this step, any product identifiers stored in hand held device 201 as bar codes are converted to products understandable to the consumer by the shopping list server 109 accessing the product identifier table 401 as discussed with respect to Figure 4A.

The kiosk 121 then groups the shopping list according to the sorting criteria as seen in step 615, and electronically delivers the personalized shopping list to the consumer according to the entered criteria as shown in step 617. In this way, the customer obtains a personalized shopping list grouped according to a sorting criteria for customer convenience. In a preferred embodiment, the steps 605 through 617 are performed automatically when the consumer

comes within a predetermined distance of kiosk 121. That is, when the consumer enters retail store 119 carrying hand held device 201, the hand held device automatically interfaces with kiosk 121, electronically transmits CID and product identifiers and sorting criteria stored in the hand held device 201 to the kiosk 121, and the kiosk 121 automatically transmits a sorted personalized shopping list of products back to hand held device 201.

Figure 7 is a flow chart showing the process of sorting product identifiers according to a sorting criteria selected by the consumer generating a personalized shopping list. In the preferred embodiment, this function is performed in the retail store 119 as the information necessary to sorting the shopping list may be specific to each retail store. In grouping products according to a sorting criteria as shown in steps 517 and 615 of Figures 5 and 6 respectively, the kiosk 121 first determines the sorting criteria entered by the consumer by manual or electrical input to the kiosk 121 as discussed with respect to Figures 5 and 6. In step 703, the kiosk 121 accesses sorting table 413 from the store database 111. Each product identifier in the current shopping list table 407 is then matched with the product identifiers in the sorting criteria table 413 as shown in step 705, and corresponding sorting data for the selected sorting criteria is collected by the kiosk 121. With sorting data obtained for each product on the shopping list associated with the CID entered into the kiosk 121, the kiosk 121 then groups the products on the list having the same sorting data and sends the data to the printer or hand held device as shown in steps 519 and 617 in Figures 5 and 6 respectively. Thus, the kiosk 121 provides a personalized shopping list sorted according to the consumer's requested sorting criteria.

In addition to providing a personalized shopping list, targeted purchase incentives and advertisements may be delivered from kiosk 121 to the consumer along with the list. Thus, the present invention in one embodiment, delivers targeted purchase incentives and advertisements to the consumer in the retail store 119 just prior to the consumer's shopping event. The actual purchase incentives and advertisements are preferably provided to the shopping list server 109 and/or host computer 301 from advertiser's server 115 for delivery to the consumer.

Figure 8 is a flow chart explaining the process for delivering purchase incentives and advertisements to a customer along with the personalized shopping list according to an embodiment of the invention. In step 801, and referring to Figure 3, the retail store computer



307 monitors the customer's transaction with kiosk 121 in retail store 119. During the transaction, the customer inputs a CID and receives either a printed personalized shopping list or down loads the shopping list into a hand held device 201 as discussed in Figures 5 and 6. The retail store computer 307 monitors the communication between kiosk 121 and shopping list server 109 and is therefore informed of the CID and each product identifier on the shopping list of the customer associated with the CID. The purchase incentives and advertisements to be delivered to the consumer at kiosk 121 are then determined in step 803. This step may be performed by the retail store computer 307, the host computer 301, and/or the shopping list server 109. The purchase incentives and advertisements are determined based on the customers purchase history and/or the items on the customer's shopping list as will be discussed. In step 805, the purchase incentive and/or advertisements are delivered to the customer and either printed at printer 117 or downloaded via the data transfer unit 123 at kiosk 121.

According to an embodiment, Figure 8's step 803 of determining purchase incentives and advertisements to be delivered to the customer at kiosk 121 is accomplished according to predetermined purchase incentives and advertisements obtained based on the customer's purchase history. In this embodiment the host computer 301 polls the retail store computer 307 in each of the retail stores 119 for purchase history information to update the purchase history information stored in the global purchase database 303. The host computer 301 generates behavioral information from the purchase history information stored in the global purchase database 303. This behavioral information may be any information that a market researcher (i.e., surveyor) wishes to use to determine whether a targeted purchase incentive should be delivered to a customer. Examples of behavioral information are whether a customer has purchased at least five pounds of dog food per month for the last year, whether the customer has purchased cold medicine in the last week, and whether the customer consistently purchases lactose-free milk.

The host computer 301 compares the behavioral information generated to purchase criteria stored in global purchase database 303 and associated with a particular purchase incentive and/or advertisement. If the behavioral information of any customer meets the purchase criteria, then the customer's CID is stored in field 423 and the corresponding purchase incentive and/or advertisement is stored in the field 425 of the predetermined

purchase incentive/advertisement table 421. In this manner, the predetermined purchase incentive/advertisement table 421 is populated with CIDs and associated purchase incentives to be delivered to the corresponding customers.

The host computer 301 delivers the predetermined purchase incentive/advertisement table 421 to the retail store 119. If desired, the table 421 is broken up into separate predetermined purchase incentive/advertisement tables for each retail store 119. If desired, only the CIDs of customers that frequent the corresponding retail store 119 are provided to each retail store 119 in order to reduce the effect of storage and transmission constraints. The predetermined purchase incentive/advertisement table 421 is received by the retail store computer 307 at the retail store 119 and stored in the local purchase database 309 and/or store database 111.

When a customer prints a shopping list in the retail store 119, the customer CID is transmitted from the kiosk 121, through the retail store computer 307 and/or host computer 301, to the shopping list server. The retail store computer determines the CID and in turn uses the CID to determine whether the same CID exists in field 423 of the predetermined purchase incentive/advertisement table 421. If the CID is found in field 423, then the corresponding predetermined purchase incentive(s) and advertisement(s) in field 425 are delivered to the kiosk 121. The predetermined purchase incentives and advertisements are then either printed on the printer 127 with a printed shopping list or transmitted over communication coupling 129 to interface 217 of hand held device 201. In the case of the hand held device 201, the predetermined purchase incentives and advertisements are transferred through bus 203 into memory unit 207 of hand held device 201 where they may be reviewed and modified as discussed with regard to Figure 6. In this manner, the purchase incentives and advertisements targeted to the customer whose CID was input at kiosk 121 are delivered to the customer at the kiosk 121 just prior to the shopping event.

In another embodiment, Figure 8's step 803 of determining purchase incentives to be delivered to the customer's hand held device 201 is accomplished according to trigger items on a shopping list generated by the customer. In this embodiment, the retail store computer 307 receives trigger items, and purchase incentives and advertisements, which are stored in the local purchase database 309. The trigger items and purchase incentives may be downloaded from the host computer 301 or shopping list server 109, input by hand, or

transferred by any other suitable means to the retail store computer 307 (e.g., by floppy disk or via a connection to another computer). The trigger items, purchase incentives, and advertisements are stored in the purchase trigger table 427 in fields 429 and 431 respectively. The trigger items correspond to information of a current shopping list. For example, the trigger items may be bar code information or UPC information associated with corresponding purchase incentives and/or advertisements 431. Thus, each purchase trigger may identify one or more products.

As discussed, the retail store computer 307 monitors information of a consumer transaction at the kiosk 121. The retail store computer 307 compares the product identifying information of the current shopping list with the trigger item stored in the field 429. If there is a match between any of the trigger items in the field 429 and the information of the current shopping list monitored by the retail store computer 307 (e.g., if a product identified by the trigger item is on the shopping list), then the retail store computer 307 electronically transmits the corresponding purchase incentive and/or advertisement in the field 431 to the kiosk 121 where the purchase incentive or advertisement is either printed or delivered to the hand held device 201. In this manner, the purchase incentives corresponding to trigger items of a current shopping list are delivered to the customer at the kiosk 121.

Figures 9A and 9B are examples of purchase incentives that may be delivered to a consumer. As shown in these figures, each purchase incentive includes a reward to be received by the customer, and may or may not include a loyalty condition to be satisfied by the customer in order to receive the reward. The loyalty condition indicates what a person must do to receive the reward. The reward may be a check, coupon, discount, certificate, redeemable medium, and/or other positive benefit to a person who meets the condition. For example, purchase incentive 901 of Figure 9A includes reward 903 (50¢ off brand B cola) which has no loyalty condition associated with it. A customer that makes a purchase of brand B cola at a retail store 119 that accepts the purchase incentive will receive a 50¢ discount without any further action. Figure 9B shows a purchase incentive 905 having a reward 907 and a loyalty condition 909. The reward of "one gallon of milk for 5 cents" is given to the customer only if the condition of spending "\$25 this week" is satisfied.

The purchase incentives 901 is preferably a remarkable offer designed cause a customer to switch to a particular brand of product or to promote brand loyalty for a product.

In the case of causing a customer to switch brands, the purchase incentive is preferably triggered by the purchase of a competitor brand as discussed with respect to Figure 4F above. Purchase incentive 905 is a remarkable offer designed to keep customers coming back to the store 119. According to an embodiment of the invention, the rewards relating to store loyalty are for staple items such as milk, eggs, bread, etc. to encourage customers to do all of their grocery shopping at the store 119 rather than shop for specific items only. However, it is to be understood that each purchase incentive may be tailored to suit different purposes, as desired.

Figure 9C is an exemplary advertisement 911 that may be delivered to the customer at kiosk 121 according to an embodiment of the present invention. The advertisement includes a message 913 designated to promote a particular brand and product. Thus, as seen in Figure 9C, brand X sweetener is promoted to the consumer as being just one calorie.

The rewards, conditions, and advertisements shown in Figures 9A, 9B, and 9C may involve subject matter other than groceries and retail stores. Moreover, the purchase incentives and advertisements may include other information not shown in Figures 9A, 9B, and 9C and the other information may include information related or unrelated to the customer's purchases or shopping list items.

Portions of the invention may be conveniently implemented using conventional general purpose computers or microprocessors programmed according to the teachings of the present invention, as will be apparent to those skilled in the computer art. Appropriate software can be readily prepared by programmers of ordinary skill based on the teachings of the present disclosure, as will be apparent to those skilled in the software art.

Figure 10 illustrates a computer system 1001 upon which an embodiment according to the present invention may be implemented. Computer system 1001 includes a bus 1003 or other communication mechanism for communicating information, and a processor 1005 coupled with bus 1003 for processing the information. Computer system 1001 also includes a main memory 1007, such as a random access memory (RAM) or other dynamic storage device (e.g., dynamic RAM (DRAM), static RAM (SRAM), synchronous DRAM (SDRAM), flash RAM), coupled to bus 1003 for storing information and instructions to be executed by processor 1005. In addition, main memory 1007 may be used for storing temporary variables or other intermediate information during execution of instructions to be executed by

processor 1005. Computer system 1001 further includes a read only memory (ROM) 1009 or other static storage device (e.g., programmable ROM (PROM), erasable PROM (EPROM), and electrically erasable PROM (EEPROM)) coupled to bus 1003 for storing static information and instructions for processor 1005. A storage device 1011, such as a magnetic disk or optical disc, is provided and coupled to bus 1003 for storing information and instructions.

The computer system 1001 may also include special purpose logic devices (e.g., application specific integrated circuits (ASICs)) or configurable logic devices (e.g., generic array of logic (GAL) or reprogrammable field programmable gate arrays (FPGAs)). Other removable media devices (e.g., a compact disc, a tape, and a removable magneto-optical media) or fixed, high density media drives, may be added to the computer system 1001 using an appropriate device bus (e.g., a small computer system interface (SCSI) bus, an enhanced integrated device electronics (IDE) bus, or an ultra-direct memory access (DMA) bus). The computer system 1001 may additionally include a compact disc reader, a compact disc reader-writer unit, or a compact disc juke box, each of which may be connected to the same device bus or another device bus.

Computer system 1001 may be coupled via bus 1003 to a display 1013, such as a cathode ray tube (CRT), for displaying information to a computer user. The display 1013 may be controlled by a display or graphics card. The computer system includes input devices, such as a keyboard 1015 and a cursor control 1017, for communicating information and command selections to processor 1005. The cursor control 1017, for example, is a mouse, a trackball, or cursor direction keys for communicating direction information and command selections to processor 1005 and for controlling cursor movement on the display 1013. In addition, a printer may provide printed listings of the data structures shown in Figures 3A through 3F, or any other data stored and/or generated by the computer system 1001.

The computer system 1001 performs a portion or all of the processing steps of the invention in response to processor 1005 executing one or more sequences of one or more instructions contained in a memory, such as the main memory 1007. Such instructions may be read into the main memory 1007 from another computer-readable medium, such as storage device 1011. One or more processors in a multi-processing arrangement may also be

employed to execute the sequences of instructions contained in main memory 1007. In alternative embodiments, hard-wired circuitry may be used in place of or in combination with software instructions. Thus, embodiments are not limited to any specific combination of hardware circuitry and software.

As stated above, the system 1001 includes at least one computer readable medium or memory programmed according to the teachings of the invention and for containing data structures, tables, records, or other data described herein. Stored on any one or on a combination of computer readable media, the present invention includes software for controlling the computer system 1001, for driving a device or devices for implementing the invention, and for enabling the computer system 1001 to interact with a human user, e.g., a customer. Such software may include, but is not limited to, device drivers, operating systems, development tools, and applications software. Such computer readable media further includes the computer program product of the present invention for performing all or a portion (if processing is distributed) of the processing performed in implementing the invention.

The computer code devices of the present invention may be any interpreted or executable code mechanism, including but not limited to scripts, interpreters, dynamic link libraries, Java classes, and complete executable programs. Moreover, parts of the processing of the present invention may be distributed for better performance, reliability, and/or cost.

The term "computer readable medium" as used herein refers to any medium that participates in providing instructions to processor 1005 for execution. A computer readable medium may take many forms, including but not limited to, non-volatile media, volatile media, and transmission media. Non-volatile media includes, for example, optical, magnetic disks, and magneto-optical disks, such as storage device 1011. Volatile media includes dynamic memory, such as main memory 1007. Transmission media includes coaxial cables, copper wire and fiber optics, including the wires that comprise bus 1003. Transmission media also may also take the form of acoustic or light waves, such as those generated during radio wave and infrared data communications.

Common forms of computer readable media include, for example, hard disks, floppy disks, tape, magneto-optical disks, PROMs (EPROM, EEPROM, Flash EPROM), DRAM, SRAM, SDRAM, or any other magnetic medium, compact disks (e.g., CD-ROM), or any

other optical medium, punch cards, paper tape, or other physical medium with patterns of holes, a carrier wave (described below), or any other medium from which a computer can read.

Various forms of computer readable media may be involved in carrying out one or more sequences of one or more instructions to processor 1005 for execution. For example, the instructions may initially be carried on a magnetic disk of a remote computer. The remote computer can load the instructions for implementing all or a portion of the present invention remotely into a dynamic memory and send the instructions over a telephone line using a modem. A modem local to computer system 1001 may receive the data on the telephone line and use an infrared transmitter to convert the data to an infrared signal. An infrared detector coupled to bus 1003 can receive the data carried in the infrared signal and place the data on bus 1003. Bus 1003 carries the data to main memory 1007, from which processor 1005 retrieves and executes the instructions. The instructions received by main memory 1007 may optionally be stored on storage device 1011 either before or after execution by processor 1005.

Computer system 1001 also includes a communication interface 1019 coupled to bus 1003. Communication interface 1019 provides a two-way data communication coupling to a network link 1021 that is connected to a local network (e.g., LAN 1023). For example, communication interface 1019 may be a network interface card to attach to any packet switched local area network (LAN). As another example, communication interface 1019 may be an asymmetrical digital subscriber line (ADSL) card, an integrated services digital network (ISDN) card or a modem to provide a data communication connection to a corresponding type of telephone line. Wireless links may also be implemented. In any such implementation, communication interface 1019 sends and receives electrical, electromagnetic or optical signals that carry digital data streams representing various types of information.

Network link 1021 typically provides data communication through one or more networks to other data devices. For example, network link 1021 may provide a connection through LAN 1023 to a host computer 1025 or to data equipment operated by a service provider, which provides data communication services through an IP (Internet Protocol) network 1027 (e.g., the Internet 101). LAN 1023 and IP network 1027 both use electrical, electromagnetic or optical signals that carry digital data streams. The signals through the

various networks and the signals on network link 1021 and through communication interface 1019, which carry the digital data to and from computer system 1001, are exemplary forms of carrier waves transporting the information. Computer system 1001 can transmit notifications and receive data, including program code, through the network(s), network link 1021 and communication interface 1019.

Obviously, numerous modifications and variations of the present invention are possible in light of the above teachings. It is therefore to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described herein.



## CLAIMS:

1. A method comprising:  
electronically receiving a customer identifier corresponding to a customer and a product identifier corresponding to a product;  
generating a personalized shopping list including the product associated with said product identifier;  
associating the personalized shopping list with the customer identifier; and  
storing said personalized shopping list and said customer identifier.
2. The method of Claim 1, further comprising:  
delivering said personalized shopping list to the customer at a retail store location based on said customer identifier.
3. The method of Claim 2, wherein said step of electronically receiving comprises the step of:  
receiving said customer identifier and product identifier from a customer computer to a computer system associated with said retail store location via a wide area network.
4. The method of Claim 3, wherein said wide area network comprises the Internet.
5. The method of Claim 2, wherein said step of electronically receiving comprises the step of:  
receiving said customer identifier and product identifier from a retail store kiosk to a computer system associated with said retail store location via one of a local area network and a wide area network.
6. The method of 5, wherein said wide area network comprises the Internet.
7. The method of Claim 2, wherein said product identifier comprises a plurality of product identifiers and said step of generating a personalized shopping list comprises:  
sorting said plurality of product identifiers according to a sorting criteria.
8. The method of Claim 7, wherein said sorting criteria comprises at least one of a product group and an aisle location of products associated with said plurality of product identifiers at said retail store location.
9. The method of Claim 7, wherein said step of sorting said plurality of product identifiers comprises sorting said plurality of product identifiers according to a sorting criteria selected by the customer.

10. The method of Claim 2, wherein said step of delivering said personalized shopping list to a customer comprises:

transmitting said personalized shopping list to a retail store kiosk via one of a wide area network and a local area network.

11. The method of Claim 2, further comprising:

generating a promotion based on said customer identifier;

delivering said promotion along with said personalized shopping list to said customer associated with said customer identifier at said retail store location.

12. The method of Claim 11, wherein said step of generating a promotion based on said customer identifier comprises generating a promotion based on a recorded purchase history associated with said customer identifier.

13. The method of Claim 2, further comprising:

generating a promotion based on said product identifier; and

delivering said promotion along with said personalized shopping list to said customer associated with said customer identifier at said retail store location.

14. The method of Claim 13, wherein said step of generating a promotion based on said product identifier comprises:

searching said personalized shopping list for a trigger item; and

said step of delivering a promotion comprises; when said trigger item is found in said personalized shopping list, delivering a promotion associated with said trigger item along with said personalized shopping list to said customer associated with said customer identifier at said retail store location.

15. A computer readable medium containing program instructions for execution on a computer system, which when executed by the computer system, cause the computer system to perform the steps in the method recited in any one of Claims 1-14.

16. A system comprising:

a memory device having embodied therein, data related to a personalized shopping list; and

a processor in communication with said memory device, said processor configured to: receive a customer identifier and a product identifier;

generate a shopping list including a product associated with said product identifier;

and

store said shopping list in said memory as a personalized shopping list associated with said customer identifier.

17. The system of Claim 16, wherein said processor is further configured to deliver said personalized shopping list to a customer at a retail store location based on said customer identifier.

18. The system of Claim 16, wherein said product identifier comprises a plurality of product identifiers and said processor is further configured to generate a sorted personalized shopping list by sorting said plurality of product identifiers according to a sorting criteria.

19. The system of Claim 18, wherein said sorting criteria comprises at least one of a product group and an aisle location of products associated with said plurality of product identifiers at said retail store location.

20. The system of Claim 16 wherein said memory stores data relating to advertisements and purchase incentives, and

said processor is further configured to:

generate a promotion based on said customer identifier, and

deliver said at least one of a purchase incentive and an advertisement along with said personalized shopping list to said customer associated with said customer identifier at said retail store location.

21. The system of Claim 20, wherein said processor is configured to generate a promotion based on said customer identifier by generating a promotion based on a recorded purchase history associated with said customer identifier.

22. The system of Claim 16, wherein said memory stores data relating to advertisements and purchase incentives, and

said processor is further configured to:

generate a promotion based on said product identifier, and

deliver said promotion along with said personalized shopping list to said customer associated with said customer identifier at said retail store location.

23. The system of Claim 22, wherein said processor is configured to:

search said personalized shopping list for a trigger item; and

when said trigger item is found in said personalized shopping list, deliver a promotion

associated with said trigger item along with said personalized shopping list to said customer associated with said customer identifier at said retail store location.

24. A system comprising:

means for electronically receiving a customer identifier and a product identifier;

means for generating a personalized shopping list including a product associated with said product identifier; and

means for storing said personalized shopping list as a personalized shopping list associated with said customer identifier.

25. The system of Claim 24, further comprising:

means for delivering said personalized shopping list to a customer at a retail store location based on said customer identifier.

26. The system of Claim 24, wherein said product identifier comprises a plurality of product identifiers and said means for generating a personalized shopping list comprises means for sorting said plurality of product identifiers according to a sorting criteria.

27. The system of Claim 26, wherein said sorting criteria comprises at least one of a product group and an aisle location of products associated with said plurality of product identifiers at said retail store location.

28. The system of Claim 24, further comprising:

means for generating a promotion based on said customer identifier; and

means for delivering said promotion along with said personalized shopping list to said customer associated with said customer identifier at said retail store location.

29. The system of Claim 28, wherein said means for generating a promotion based on said customer identifier comprises means for generating a promotion based on a recorded purchase history associated with said customer identifier.

30. The system of Claim 24, further comprising:

means for generating a promotion based on said product identifier; and

means delivering said promotion along with said personalized shopping list to said customer associated with said customer identifier at said retail store location.

31. The system of Claim 30, wherein said means for generating a promotion based on said product identifier comprises means for searching said personalized shopping list for a trigger item; and

said means for delivering said promotion comprises means for delivering, when said trigger item is found in said personalized shopping list, a promotion associated with said trigger item along with said personalized shopping list to said customer associated with said customer identifier at said retail store location.

32. A method comprising:

receiving a customer identifier corresponding to a customer;

obtaining a personalized shopping list in association with said customer identifier; and

delivering said personalized shopping list to the customer associated with said customer identifier at a retail store location in response to receiving the customer identifier.

33. The method of Claim 32, wherein said step of receiving a customer identifier comprises:

receiving a customer identifier from said customer by at least one of reading a magnetic card including the customer identifier, optically scanning a bar code including the customer identifier, and receiving a manual input of said customer identifier from a numeric keypad.

34. The method of Claim 32, wherein said step of receiving a customer identifier comprises receiving said customer identifier by an electronic input from a hand held device.

35. The method of Claim 34, wherein said step of receiving said customer identifier by an electronic input from a hand held device comprises receiving said customer identifier via at least one of a hardwired and wireless medium.

36. The method of Claim 32, wherein said step of obtaining a personalized shopping list comprises:

electronically transmitting said customer identifier to a computer system for generating a personalized shopping list; and

receiving a personalized shopping list associated with said customer identifier via at least one of a local area network and a wide area network.

37. The method of Claim 32, wherein said step of obtaining a personalized shopping list comprises obtaining a sorted personalized shopping list.

38. The method of Claim 37, wherein said step of obtaining a sorted personalized shopping list comprises obtaining a shopping list including a list of products sorted based on

one of a predetermined and preselected sorting criteria.

39. The method of Claim 38, wherein said sorting criteria comprises at least one of a product group and a location of a product at said retail store location.

40. The method of Claim 32, wherein said step of delivering said personalized shopping list comprises at least one of printing a hardcopy of said shopping list and transmitting an electronic copy of said personalized shopping list to a hand held device.

41. The method of Claim 40, wherein said step of electronically transmitting said personalized shopping list to a hand held device comprises electronically transmitting said personalized shopping list to a hand held device via one of a hardwired and wireless medium.

42. The method of Claim 32, further comprising:  
obtaining at least one of an advertisement and a purchase incentive; and  
delivering said at least one of an advertisement and a purchase incentive to said customer along with said personalized shopping list.

43. The method of Claim 42 wherein said step of obtaining at least one of an advertisement and a purchase incentive comprises obtaining at least one of an advertisement and a purchase incentive based on at least one of said customer identifier received and a product included on said personalized shopping list.

44. The method of Claim 43 wherein said step of obtaining at least one of an advertisement and a purchase incentive based on at least one of said customer identifier received and a product included on said personalized shopping list comprises obtaining at least one of an advertisement and a purchase incentive based on a purchase history associated with said customer identifier.

45. The method of Claim 42, wherein said step of obtaining at least one of an advertisement and a purchase incentive comprises electronically receiving at least one of an advertisement and a purchase incentive via a wide area network.

46. The method of Claim 42, wherein said step of delivering said at least one of an advertisement and a purchase incentive comprises at least one of printing said at least one of an advertisement and a purchase incentive, and electronically transmitting said at least one of an advertisement and a purchase incentive to a hand held device.

47. The method of Claim 32, further comprising receiving a product identifier along with said customer identifier; and

wherein said step of obtaining a personalized shopping list comprises electronically transmitting said product identifier and customer identifier to a computer system for generating a personalized shopping list, and receiving a personalized shopping list including a product associated said product identifier.

48. The method of Claim 47, wherein said step of receiving a product identifier along with said customer identifier comprises electronically receiving said product identifier and customer identifier from a hand held device.

49. The method of Claim 48, wherein said step of receiving a customer identifier and product identifier from a hand held device comprises receiving said product identifier and customer identifier from said hand held device via at least one of a hardwired and a wireless medium.

50. The method of Claim 47, wherein said steps of transmitting said customer identifier and product identifier, and receiving said personalized shopping list are performed via at least one of a local area network and a wide area network.

51. The method of Claim 49, further comprising  
receiving a sorting criteria from said hand held device;  
transmitting said sorting criteria with said product identifier and customer identifier to a computer system for generating a sorted personalized shopping list; and  
receiving a sorted personalized shopping list.

52. The method of Claim 51, wherein said step of transmitting said sorting criteria with said product identifier and customer identifier comprises transmitting said sorting criteria with said product identifier and customer identifier to said computer system via at least one of a local area network and a wide area network.

53. The method of Claim 51, further comprising:  
obtaining at least one of an advertisement and a purchase incentive; and  
delivering said at least one of an advertisement and a purchase incentive to said customer along with said personalized shopping list.

54. The method of Claim 53, wherein said step of obtaining at least one of an advertisement and a purchase incentive comprises obtaining at least one of an advertisement and a purchase incentive based on at least one of said customer identifier and said product identifier.

55. The method of Claim 53, wherein said step of obtaining at least one of an advertisement and a purchase incentive comprises electronically receiving at least one of an advertisement and a purchase incentive via a wide area network, and

said step of delivering said at least one of an advertisement and a purchase incentive comprise delivering said at least one of an advertisement and a purchase incentive to a hand held device via at least one of a hardwired and wireless medium.

56. The method of Claim 42, wherein said product identifier comprises a plurality of product identifiers, said method further comprising the step of sorting said plurality of product identifiers according to a sorting criteria.

57. The method of Claim 56, wherein said sorting criteria comprises at least one of a product group and an aisle location of products associated with said plurality of product identifiers at said retail store location.

58. The method of Claim 56, wherein said step of sorting said product identifiers comprises sorting said product identifiers according to a sorting criteria selected by the customer.

59. A computer readable medium containing program instructions for execution on a computer system, which when executed by the computer system, cause the computer system to perform the steps in the method recited in any one of Claims 32-58.

60. A kiosk comprising:

a memory device having embodied therein, data related to a personalized shopping list; and

a processor in communication with said memory device, said processor configured to: receive a customer identifier,

obtain a personalized shopping list associated with said customer identifier, and

deliver said personalized shopping list to a customer associated with said customer identifier.

61. The kiosk of Claim 60, wherein said processor is further configured to receive said customer identifier by at least one of reading a magnetic card including the customer identifier, optically scanning a bar code including the customer identifier, receiving a manual input of said customer identifier from a numeric keypad, and receiving said customer identifier via a wireless medium.



62. The kiosk of Claim 60, wherein said processor is further configured to obtain said personalized shopping list by:

electronically transmitting said customer identifier to a computer system for generating a personalized shopping list, and

receiving a personalized shopping list associated with said customer identifier via at least one of a local area network and a wide area network.

63. The kiosk of Claim 60, wherein said processor is further configured to deliver said personalized shopping list by at least one of:

printing a hardcopy of said shopping list, and

transmitting an electronic copy of said personalized shopping list to a hand held device.

64. The kiosk of Claim 60, wherein said processor is further configured to:

obtain at least one of an advertisement and a purchase incentive; and

deliver said at least one of an advertisement and a purchase incentive to said customer along with said personalized shopping list.

65. The kiosk of Claim 64, wherein said processor is further configured to deliver said at least one of an advertisement and a purchase incentive by at least one of:

printing said at least one of an advertisement and a purchase incentive, and

electronically transmitting said at least one of an advertisement and a purchase incentive to a hand held device.

66. The kiosk of Claim 60, wherein said processor is further configured to:

receive a product identifier along with said customer identifier; and

obtain a personalized shopping list by:

electronically transmitting said product identifier and customer identifier to a computer system for generating a personalized shopping list, and

receiving a personalized shopping list including a product associated said product identifier.

67. The kiosk of Claim 66, wherein said processor is further configured to receive a product identifier along with said customer identifier by electronically receiving said product identifier and customer identifier from a hand held device.

68. The kiosk of Claim 67, wherein said processor is further configured to

receive a sorting criteria from said hand held device;  
transmit said sorting criteria with said product identifier and customer identifier to a computer system for generating a sorted personalized shopping list; and  
receive a sorted personalized shopping list.

69. A kiosk comprising:  
means for receiving a customer identifier;  
means for obtaining a personalized shopping list associated with said customer identifier; and  
means for delivering said personalized shopping list to a customer associated with said customer identifier.

70. The kiosk of Claim 69, wherein said means for receiving a customer identifier comprises means for receiving a customer identifier from said customer by at least one of reading a magnetic card including the customer identifier, optically scanning a bar code including the customer identifier, and receiving a manual input of said customer identifier from a numeric keypad.

71. The kiosk of Claim 69, wherein said means for obtaining a personalized shopping list comprises:  
means for electronically transmitting said customer identifier to a computer system for generating a personalized shopping list; and  
means for receiving a personalized shopping list associated with said customer identifier via at least one of a local area network and a wide area network.

72. The kiosk of Claim 69, wherein said means for delivering said personalized shopping list comprises at least one of printing a hardcopy of said shopping list and transmitting an electronic copy of said personalized shopping list to a hand held device.

73. The method of Claim 69, further comprising:  
means for obtaining at least one of an advertisement and a purchase incentive; and  
means for delivering said at least one of an advertisement and a purchase incentive to said customer along with said personalized shopping list.

74. The kiosk of Claim 73, wherein said means for delivering said at least one of an advertisement and a purchase incentive comprises means for at least one of printing said at

least one of an advertisement and a purchase incentive, and electronically transmitting said at least one of an advertisement and a purchase incentive to a hand held device.

75. The kiosk of Claim 69, further comprising means for receiving a product identifier along with said customer identifier; and

wherein said means for obtaining a personalized shopping list comprises:

means for electronically transmitting said product identifier and customer identifier to a computer system for generating a personalized shopping list, and

means for receiving a personalized shopping list including a product associated said product identifier.

76. The kiosk of Claim 75, wherein said means for receiving a product identifier along with said customer identifier comprises means for electronically receiving said product identifier and customer identifier from a hand held device.

77. The kiosk of Claim 76, further comprising:

means for receiving a sorting criteria from said hand held device;

means for transmitting said sorting criteria with said product identifier and customer identifier to a computer system for generating a sorted personalized shopping list; and

means for receiving a sorted personalized shopping list.

78. A method comprising:

receiving and monitoring information relating to a personalized shopping list;

generating at least one promotion based on said information received; and

delivering said at least one promotion to said customer at a retail store location along with said personalized shopping list.

79. The method of Claim 78, further comprising:

determining a customer identifier representing a customer associated with said personalized shopping list; and

generating a promotion based on said customer identifier,

80. The method of Claim 79, wherein said step of generating a promotion based on said customer identifier comprises generating a promotion based on a recorded purchase history associated with said customer identifier.

81. The method of Claim 78, further comprising:

determining a product identifier representing a product included in said personalized

shopping list; and

generating a promotion based on said product identifier.

82. The method of Claim 81, wherein said step of generating a promotion based on said product identifier comprises searching said personalized shopping list for a trigger item; and

said step of delivering said promotion comprises, when said trigger item is found in said personalized shopping list, delivering a promotion associated with said trigger item along with said personalized shopping list to said customer associated with said customer identifier at said retail store location.

83. The method of Claim 81, wherein said product identifier comprises a plurality of product identifiers, said method further comprising:

sorting said plurality of product identifiers according to a sorting criteria.

84. The method of Claim 83, wherein said sorting criteria comprises at least one of a product group and an aisle location of products associated with said plurality of product identifiers at said retail store location.

85. The method of Claim 83, wherein said step of sorting said plurality product identifiers comprises sorting said plurality of product identifiers according to a sorting criteria selected by the customer.

86. A computer readable medium containing program instructions for execution on a computer system, which when executed by the computer system, cause the computer system to perform the steps in the method recited in any one of Claims 78-85.

87. A system comprising:

a memory having embodied therein data related to a personalized shopping list; and  
a processor in communication with said memory device, said processor configured to:  
monitor an electronic transaction of a customer obtaining a personalized shopping list;  
generate at least one of an advertisement and a purchase incentive; and  
deliver said at least one of an advertisement and a purchase incentive to said customer at a retail store location along with said personalized shopping list.

88. The computer system of Claim 87, wherein said processor is further configured to:

determine a customer identifier representing said customer obtaining said

personalized shopping list; and

generate a promotion based on said customer identifier.

89. The computer system of Claim 88, wherein said processor is further configured to generate a promotion based on said customer identifier by generating a promotion based on a recorded purchase history associated with said customer identifier.

90. The computer system of Claim 87, wherein said processor is further configured to:

determine a product identifier representing a product included in said personalized shopping list; and

generate a promotion based on said product identifier.

91. The computer system of Claim 90, wherein said processor is configured to:  
search said personalized shopping list for a trigger item; and  
deliver said promotion by:

when said trigger item is found in said personalized shopping list, deliver a promotion associated with said trigger item along with said personalized shopping list to said customer associated with said customer identifier at said retail store location.

92. The computer system of Claim 90, wherein said product identifier comprises a plurality of product identifiers, and said processor is further configured to:

sort said plurality of product identifiers according to a sorting criteria.

93. A system comprising:

means for monitoring an electronic transaction of a customer obtaining a personalized shopping list;

means for generating at least one of an advertisement and a purchase incentive; and

means for delivering said at least one of an advertisement and a purchase incentive to said customer at a retail store location along with said personalized shopping list.

94. The system of Claim 93, further comprising:

means for determining a customer identifier representing said customer obtaining said personalized shopping list; and

means for generating a promotion based on said customer identifier;

95. The method of Claim 94, wherein said means for generating a promotion based on said customer identifier comprises means for generating a promotion based on a recorded

purchase history associated with said customer identifier.

96. The system of Claim 93, further comprising:

means for determining a product identifier representing a product included in said personalized shopping list; and

means for generating a promotion based on said product identifier.

97. The system of Claim 96, wherein said means for generating a promotion based on said product identifier comprises:

means for searching said personalized shopping list for a trigger item; and

said means for delivering a promotion comprises:

means for delivering, when said trigger item is found in said personalized shopping list, a promotion associated with said trigger item along with said personalized shopping list to said customer associated with said customer identifier at said retail store location.

98. The system of Claim 97 wherein said product identifier comprises a plurality of product identifiers, said system further comprising:

means for sorting said plurality of product identifiers according to a sorting criteria.

99. A method comprising:

electronically transmitting a customer identifier to a computer system associated with a retail store location; and

electronically receiving at said retail store location a personalized shopping list associated with said customer identifier.

100. The method of Claim 99, further comprising:

electronically transmitting a product identifier to said computer system; and

electronically receiving at said retail store location a personalized shopping list associated with said customer identifier, said personalized shopping list including a product associated with said product identifier.

101. The method of Claim 100, wherein said step of electronically transmitting a product identifier comprises:

storing said product identifier on a customer computer; and

electronically transmitting said product identifier from said customer computer to said computer system via a wide area network.

102. The method of Claim 100, wherein said steps of electronically transmitting said product identifier and electronically transmitting said customer identifier comprise:

storing said customer identifier and product identifier on a hand held device; and  
electronically transmitting said customer identifier and product identifier from said hand held device to said computer system associated with a retail store.

103. The method of Claim 102, wherein said step of storing comprises scanning said product identifier off a product package using said hand held device.

104. The method of Claim 102, wherein said step of electronically transmitting said customer identifier and product identifier from said hand held device to said computer associated with a retail store location comprises electronically transmitting said customer identifier and product identifier from said hand held device to said computer associated with said retail store location via one of a hardwired medium and a wireless communications link.

105. The method of Claim 99, wherein said step of electronically receiving comprises receiving an electronic copy of said personalized shopping list to a hand held device from said computer system associated with said retail store location.

106. The method of Claim 105, wherein said step of receiving an electronic copy of said personalized shopping list to a hand held device comprises receiving an electronic copy of said personalized shopping list to said hand held device to from said computer system via one of a hardwired medium and a wireless communications link.

107. The method of Claim 100, further comprising:  
electronically transmitting a sorting criteria to said computer system, and  
wherein said step of receiving said personalized shopping list comprises receiving a sorted personalized shopping list sorted according to said sorting criteria.

108. The method of Claim 107, wherein said step of electronically transmitting a sorting criteria to said computer system comprises transmitting at least one of a product category criteria and a aisle location criteria.

109. The method of Claim 102, further comprising:  
storing a sorting criteria to said hand held device; and  
electronically transmitting said sorting criteria to said computer system along with said customer identifier and product identifier.

110. The method of Claim 100, further comprising:

receiving a promotion at said hand held device along with said personalized shopping list.

111. The method of Claim 110, wherein said step of receiving a promotion comprises receiving at least one of a purchase incentive and advertisement based on at least one of said customer identifier and said product identifier.

112. A computer readable medium containing program instructions for execution on a hand held device, which when executed by the hand held device, cause the computer system to perform the steps in the method recited in any one of Claims 99-111.

113. A hand held device comprising:

a memory device having embodied therein, data related to a personalized shopping list; and

a processor in communication with said memory device, said processor configured to: electronically transmit a customer identifier to a computer system associated with a retail store location; and

electronically receive at said retail store location a personalized shopping list associated with said customer identifier.

114. The hand held device of Claim 113, wherein said processor is further configured to:

electronically transmit a product identifier to said computer system; and

electronically receive at said retail store location a personalized shopping list associated with said customer identifier, said personalized shopping list including a product associated with said product identifier.

115. The hand held device of Claim 114, wherein said processor is further configured to electronically transmit said customer identifier and product identifier to said computer system by:

electronically transmitting said customer identifier and product identifier from a hand held device to said computer associated with said retail store location via one of a hardwired medium and a wireless communications link.

116. The hand held device 113, wherein said processor is further configured to receive said personalized shopping list by receiving an electronic copy of said personalized shopping list to a hand held device from said computer system.



117. The hand held device 113, wherein said processor is further configured to :  
electronically transmit a sorting criteria to said computer system, and to,  
receive said personalized shopping list by receiving a sorted personalized shopping  
list sorted according to said sorting criteria.

118. The hand held device of Claim 114, wherein said processor is further configured  
to:

receive a promotion along with said personalized shopping list.

119. The hand held device of Claim 118, wherein said processor is further configured  
to receive a promotion by receiving a promotion based on at least one of said customer  
identifier and said product identifier.

120. A hand held device comprising:

means for electronically transmitting a customer identifier to a computer system  
associated with a retail store location; and

means for electronically receiving at said retail store location a personalized shopping  
list associated with said customer identifier.

121. The hand held device of Claim 120, further comprising:

means for electronically transmitting a product identifier to said computer system; and

means for electronically receiving at said retail store location a personalized shopping  
list associated with said customer identifier, said personalized shopping list including a  
product associated with said product identifier.

122. The hand held device of Claim 120, further comprising:

means for electronically transmitting a sorting criteria to said computer system, and

wherein said means for receiving said personalized shopping list comprises receiving  
a sorted personalized shopping list sorted according to said sorting criteria.

123. The hand held device of Claim 121, further comprising:

means for storing said sorting criteria to said hand held device; and

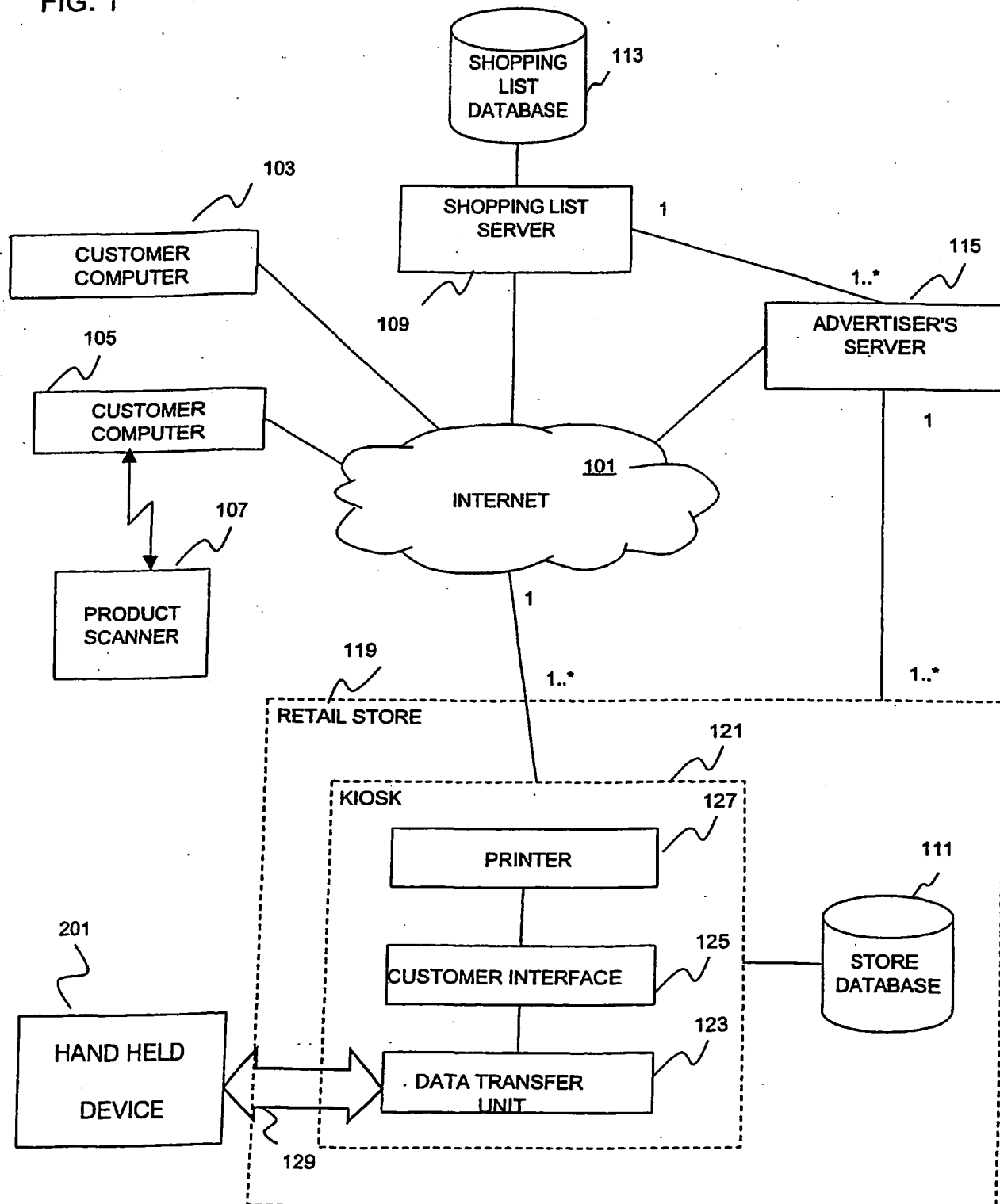
means for electronically transmitting said sorting criteria to said computer system  
along with said customer identifier and product identifier.

124. The hand held device of Claim 120, further comprising:

means for receiving a promotion at said hand held device along with said personalized  
shopping list.

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FIG. 1



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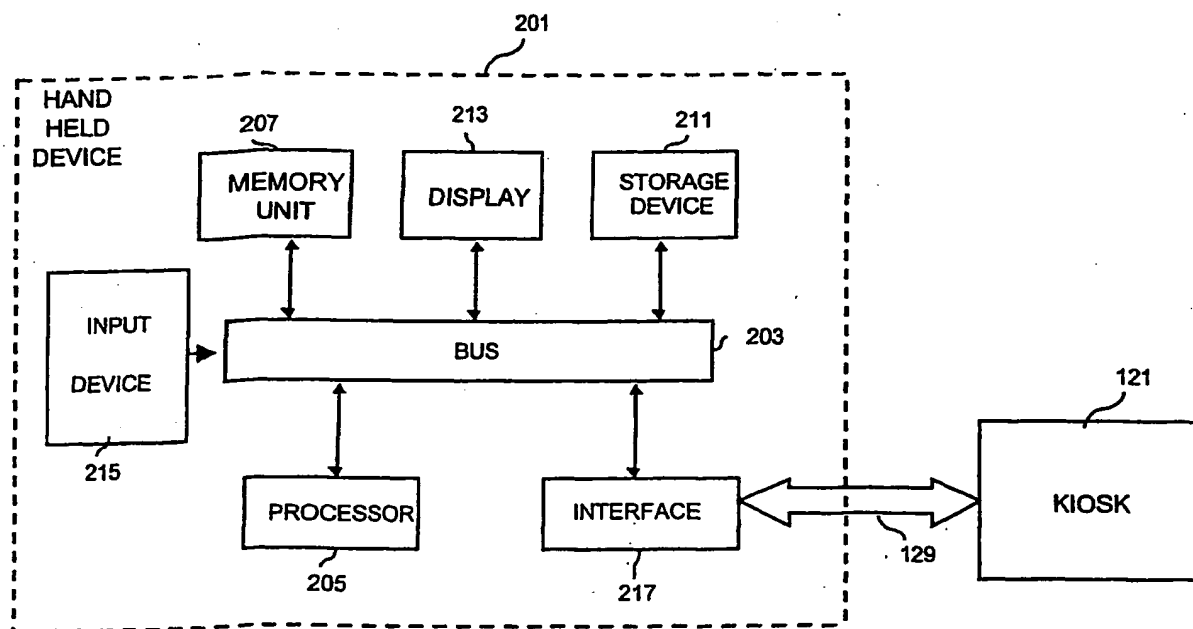


FIG. 2

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401 →

PRODUCT IDENTIFIER	PRODUCT
12345 8765 x23y86	XYZ FROZEN CARROTS BONELESS PORK CHOPS BRAND A CHEDDAR CHEESE

FIG.4A

407 →

CID	SHOPPING LIST ITEMS
071870	BRAND A CHEDDAR CHEESE; XYZ FROZEN CARROTS...
090269	ABC COLA; BONELESS PORK CHOPS; 12345 ...

FIG.4B

408 →

CID	PAST SHOPPING LISTS
071870	04/18/2000
090269	03/25/2000; 03/14/2000

FIG.4C

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413 →

PRODUCT IDENTIFIER	PRODUCT CATEGORY	PRODUCT LOCATION
12345	FROZEN FOODS	AISLE 12
8765	MEATS	MEAT COUNTER
FF2081	FROZEN FOODS	AISLE 13

FIG.4D

421 →

CID	PREDETERMINED PURCHASE INCENTIVE/ADVERTISEMENT
071870	One Gallon of Milk for 5 cents
MMM765	Brand X detergent gets your whites whitest

FIG.4E

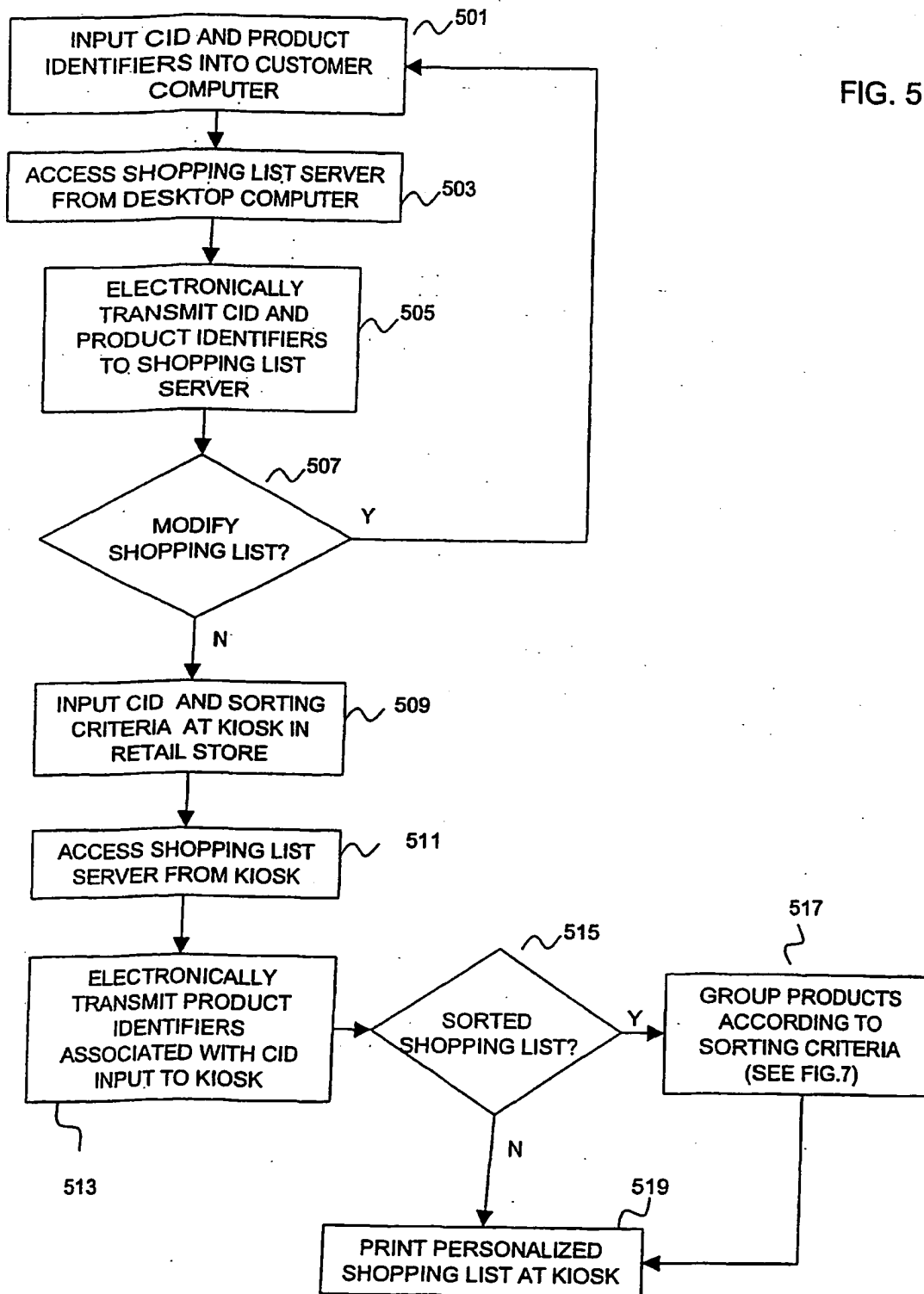
427 →

TRIGGER ITEM	PURCHASE INCENTIVE/ADVERTISEMENT
Brand A Cola	50 cents off brand B Cola
brand T tea	Brand X sweetener, just one calorie

FIG.4F

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FIG. 5



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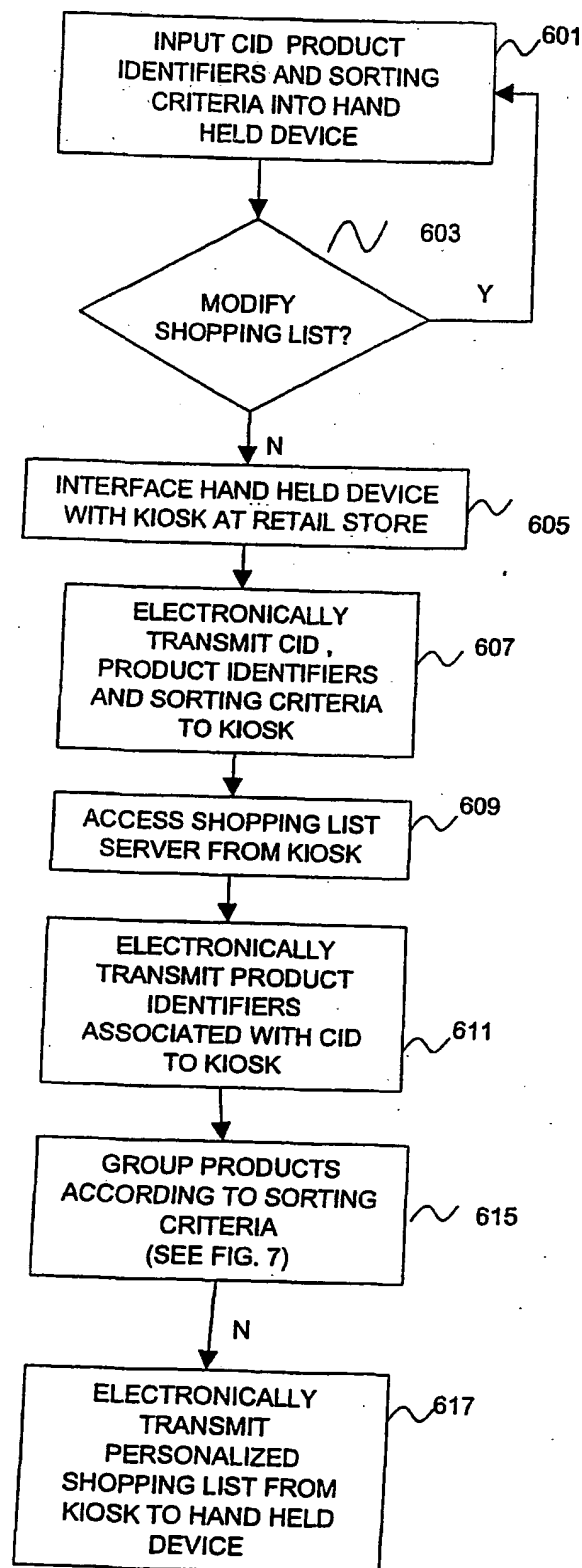


FIG. 6

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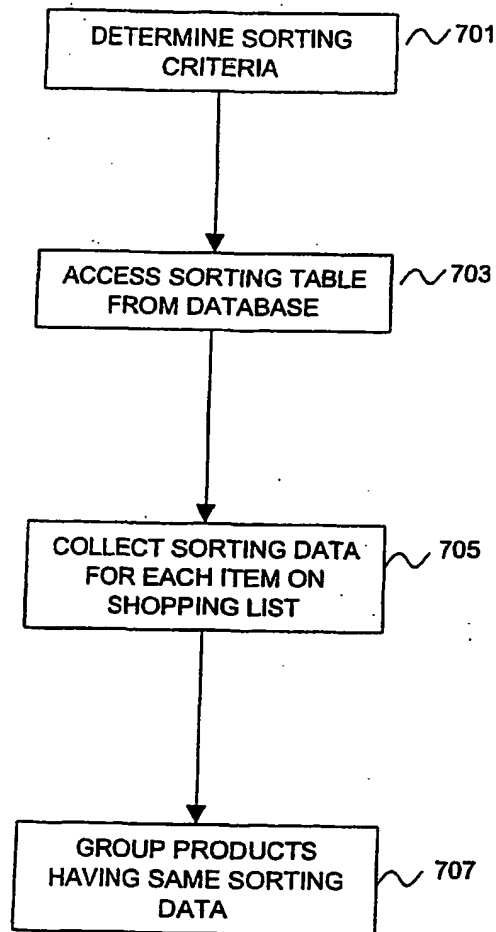


FIG. 7



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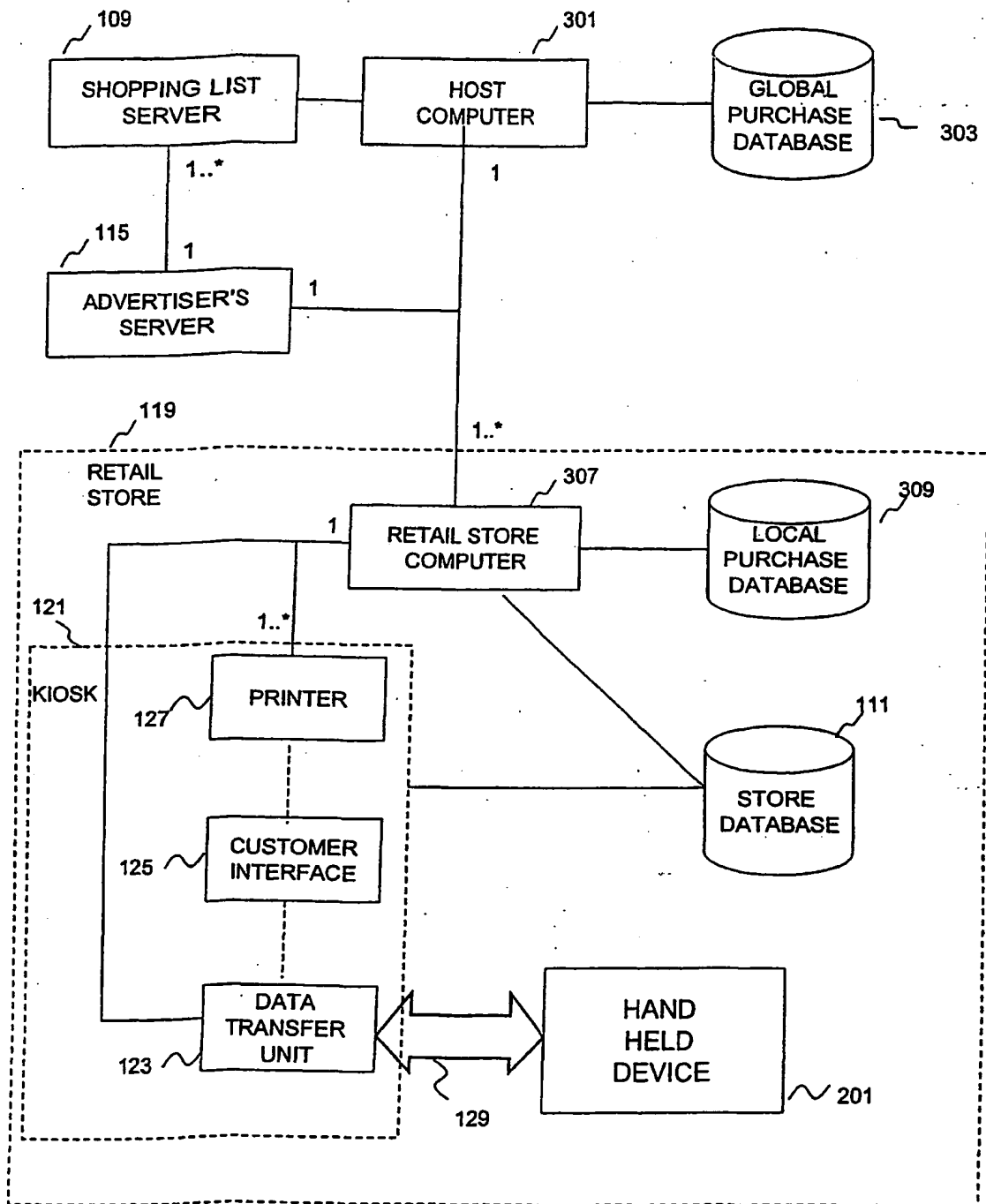


FIG. 3

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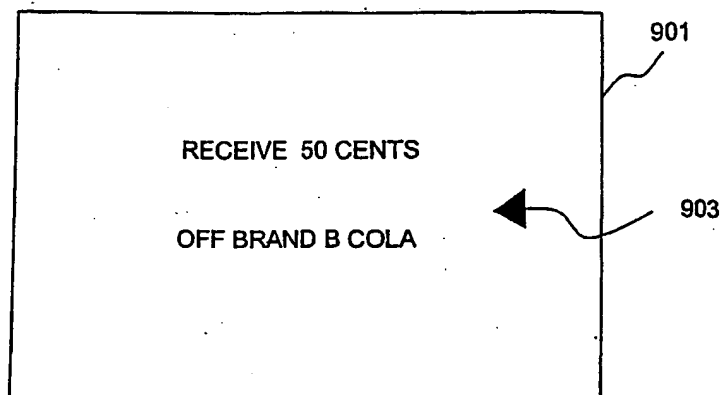


FIG. 9A

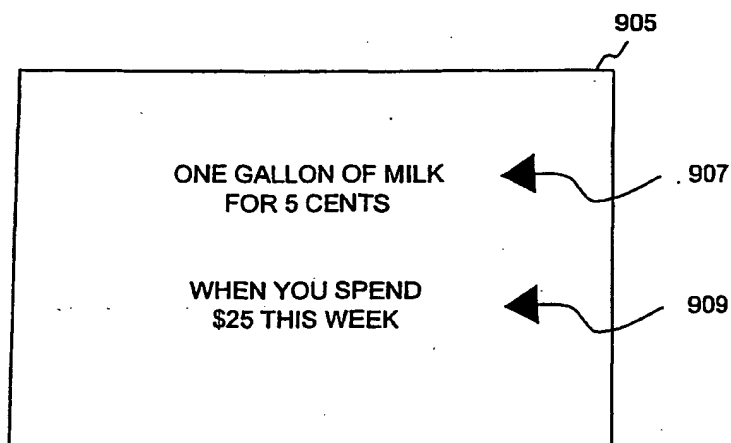


FIG. 9B

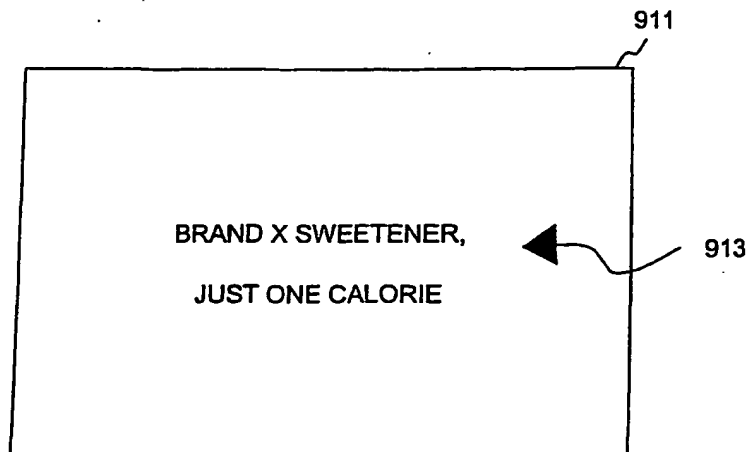


FIG. 9C

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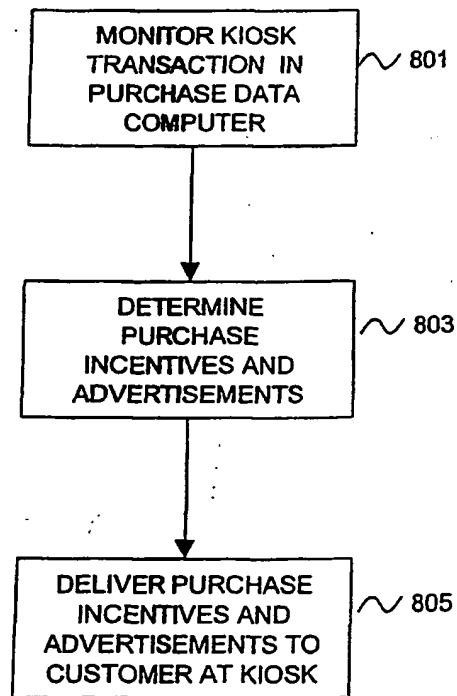


FIG. 8

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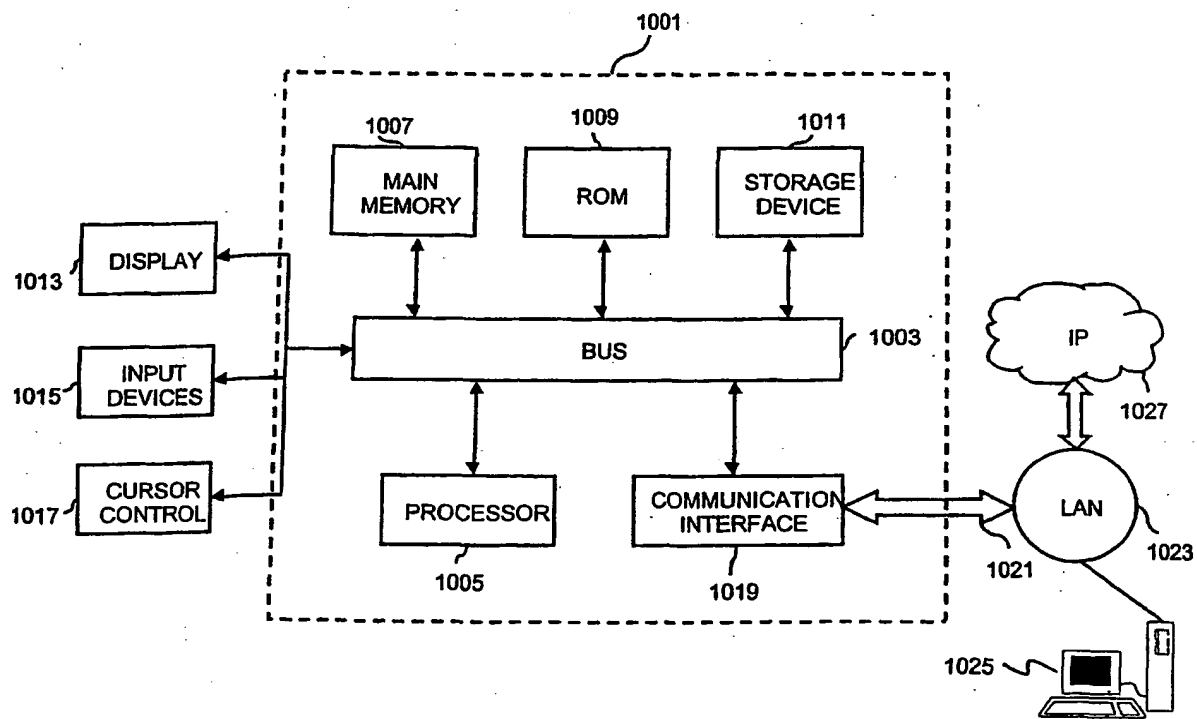


FIG. 10

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International Bureau



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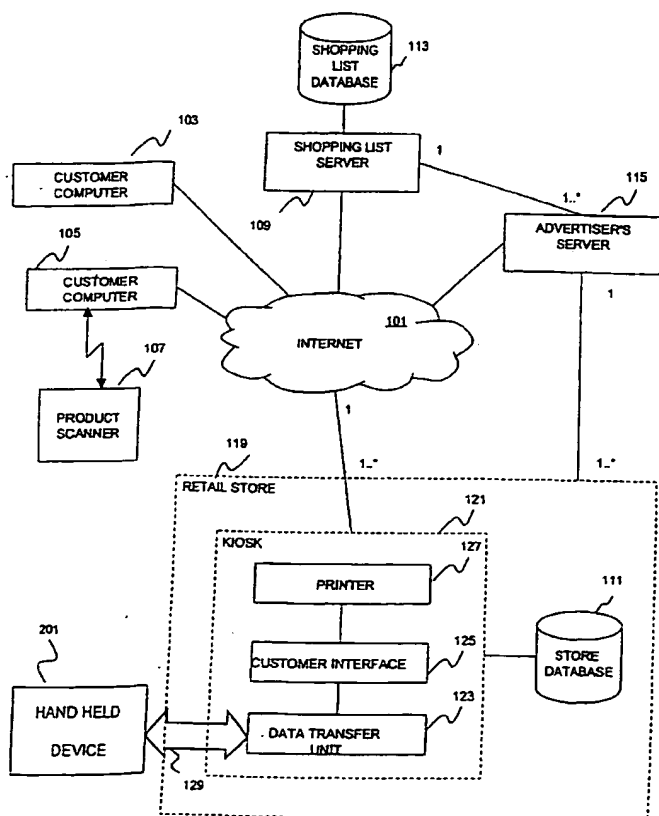
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[Continued on next page]

(54) Title: **METHOD AND SYSTEM FOR GENERATING A PERSONALIZED SHOPPING LIST**



(57) Abstract: A method, system, and computer readable medium for generating a personalized shopping list. The method includes electronically receiving a customer identifier and an associated product identifier to a computer associated with a retail store and generating, using the computer, a personalized shopping list including a product associated with the product identifier based on the customer identifier. The personalized shopping list is then delivered to a customer associated with the customer identifier in the retail store. The personalized shopping list may be delivered to the customer as a printed list or as an electronic copy of the personalized list and may be sorted according to a sorting criteria selected by the customer. The list may also be accompanied by purchase incentives and advertisements.

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## INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 G06F17/60

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## B. FIELDS SEARCHED

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, IBM-TDB, WPI Data, INSPEC, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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☒ Further documents are listed in the continuation of box C.

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